FILE 'REGISTRY' ENTERED AT 11:52:27 ON 13 APR 2005

Property values tagged with IC are from the ZIC/VINITI data file
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STRUCTURE FILE UPDATES: 12 APR 2005 HIGHEST RN 848391-87-7
DICTIONARY FILE UPDATES: 12 APR 2005 HIGHEST RN 848391-87-7

TSCA INFORMATION NOW CURRENT THROUGH JANUARY 18, 2005

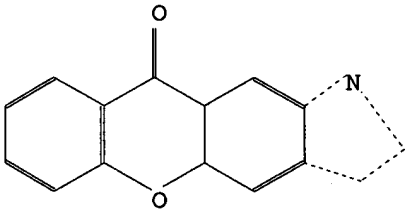
Please note that search-term pricing does apply when
conducting SmartSELECT searches.

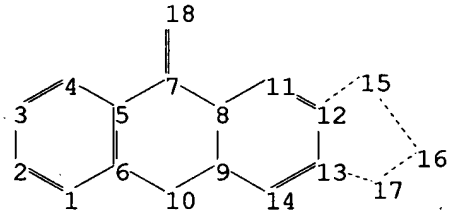
****
* *
* The CA roles and document type information have been removed from *
* the IDE default display format and the ED field has been added, *
* effective March 20, 2005. A new display format, IDERL, is now *
* available and contains the CA role and document type information. *
* *
****

Crossover limits have been increased. See HELP CROSSOVER for details.

Experimental and calculated property data are now available. For more
information enter HELP PROP at an arrow prompt in the file or refer
to the file summary sheet on the web at:
http://www.cas.org/ONLINE/DBSS/registryss.html

=>
Uploading C:\Program Files\Stnexp\Queries\10716732.str



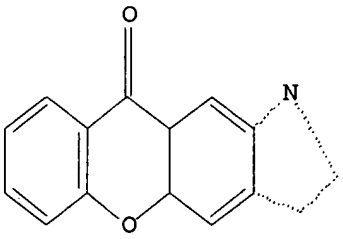


chain nodes :
18
ring nodes :
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17
chain bonds :
7-18
ring bonds :
1-2 1-6 2-3 3-4 4-5 5-6 5-7 6-10 7-8 8-9 8-11 9-10 9-14 11-12 12-13
12-15 13-14 13-17 15-16 16-17
exact/norm bonds :
5-7 6-10 7-8 7-18 8-9 8-11 9-10 9-14 11-12 12-13 12-15 13-14 13-17
15-16 16-17
normalized bonds :
1-2 1-6 2-3 3-4 4-5 5-6

Match level :
1:Atom 2:Atom 3:Atom 4:Atom 5:Atom 6:Atom 7:Atom 8:Atom 9:Atom 10:Atom
11:Atom 12:Atom 13:Atom 14:Atom 15:Atom 16:Atom 17:Atom 18:CLASS

L1 STRUCTURE UPLOADED

=> d
L1 HAS NO ANSWERS
L1 STR



Structure attributes must be viewed using STN Express query preparation.

=> s l1
SAMPLE SEARCH INITIATED 11:52:42 FILE 'REGISTRY'
SAMPLE SCREEN SEARCH COMPLETED - 1015 TO ITERATE

98.5% PROCESSED 1000 ITERATIONS 0 ANSWERS
INCOMPLETE SEARCH (SYSTEM LIMIT EXCEEDED)
SEARCH TIME: 00.00.01

FULL FILE PROJECTIONS: ONLINE **COMPLETE**
BATCH **COMPLETE**
PROJECTED ITERATIONS: 18389 TO 22211
PROJECTED ANSWERS: 0 TO 0

L2 0 SEA SSS SAM L1

=> s l1 full
FULL SEARCH INITIATED 11:52:45 FILE 'REGISTRY'
FULL SCREEN SEARCH COMPLETED - 20804 TO ITERATE

100.0% PROCESSED 20804 ITERATIONS 0 ANSWERS
SEARCH TIME: 00.00.01

L3 0 SEA SSS FUL L1

=> log y
COST IN U.S. DOLLARS SINCE FILE ENTRY TOTAL SESSION
FULL ESTIMATED COST 161.33 161.54

STN INTERNATIONAL LOGOFF AT 11:53:02 ON 13 APR 2005

Connecting via Winsock to STN

Welcome to STN International! Enter x:x

LOGINID:sssptasel1626

```
PASSWORD:
TERMINAL (ENTER 1, 2, 3, OR ?):2


* * * * * * * * * *   Welcome to STN International   * * * * * * * * * *

 NEWS  1          Web Page URLs for STN Seminar Schedule - N. America
 NEWS  2          "Ask CAS" for self-help around the clock
 NEWS  3  FEB 25  CA/CAPLUS - Russian Agency for Patents and Trademarks
                  (ROSPATENT) added to list of core patent offices covered
 NEWS  4  FEB 28  PATDPAFULL - New display fields provide for legal status
                  data from INPADOC
 NEWS  5  FEB 28  BABS - Current-awareness alerts (SDIs) available
 NEWS  6  FEB 28  MEDLINE/LMEDLINE reloaded
 NEWS  7  MAR 02  GBFULL: New full-text patent database on STN
 NEWS  8  MAR 03  REGISTRY/ZREGISTRY - Sequence annotations enhanced
 NEWS  9  MAR 03  MEDLINE file segment of TOXCENTER reloaded
 NEWS  10 MAR 22  KOREAPAT now updated monthly; patent information enhanced
 NEWS  11 MAR 22  Original IDE display format returns to REGISTRY/ZREGISTRY
 NEWS  12 MAR 22  PATDPASPC - New patent database available
 NEWS  13 MAR 22  REGISTRY/ZREGISTRY enhanced with experimental property tags
 NEWS  14 APR 04  EPFULL enhanced with additional patent information and new
                  fields
 NEWS  15 APR 04  EMBASE - Database reloaded and enhanced

 NEWS EXPRESS  JANUARY 10 CURRENT WINDOWS VERSION IS V7.01a, CURRENT
               MACINTOSH VERSION IS V6.0c(ENG) AND V6.0Jc(JP),
               AND CURRENT DISCOVER FILE IS DATED 10 JANUARY 2005

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  * * * * * * * * * * * * * * STN  Columbus  * * * * * * * * * * * * * * *

FILE 'HOME' ENTERED AT 14:40:43 ON 13 APR 2005

=> file reg
COST IN U.S. DOLLARS                                SINCE FILE      TOTAL
                                                       ENTRY    SESSION
FULL ESTIMATED COST                                     0.21       0.21

FILE 'REGISTRY' ENTERED AT 14:40:51 ON 13 APR 2005
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STRUCTURE FILE UPDATES:   12 APR 2005  HIGHEST RN 848391-87-7
```

DICTIONARY FILE UPDATES: 12 APR 2005 HIGHEST RN 848391-87-7

TSCA INFORMATION NOW CURRENT THROUGH JANUARY 18, 2005

Please note that search-term pricing does apply when conducting SmartSELECT searches.

****
*
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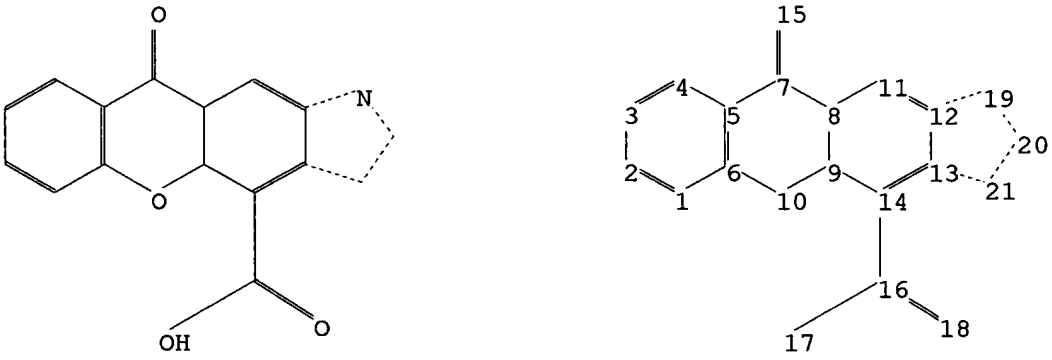
* effective March 20, 2005. A new display format, IDERL, is now *
* available and contains the CA role and document type information. *
*
****

Crossover limits have been increased. See HELP CROSSOVER for details.

Experimental and calculated property data are now available. For more information enter HELP PROP at an arrow prompt in the file or refer to the file summary sheet on the web at:
http://www.cas.org/ONLINE/DBSS/registryss.html

=>
Uploading C:\Program Files\Stnexp\Queries\10716732s.str

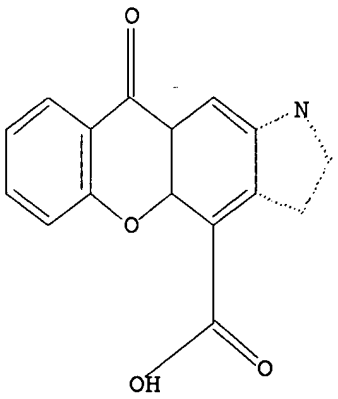


chain nodes :
15 16 17 18
ring nodes :
1 2 3 4 5 6 7 8 9 10 11 12 13 14 19 20 21
chain bonds :
7-15 14-16 16-17 16-18
ring bonds :
1-2 1-6 2-3 3-4 4-5 5-6 5-7 6-10 7-8 8-9 8-11 9-10 9-14 11-12 12-13 12-19 13-14 13-21 19-20 20-21
exact/norm bonds :
5-7 6-10 7-8 7-15 8-9 8-11 9-10 9-14 11-12 12-13 12-19 13-14 13-21 19-20 20-21
exact bonds :
14-16
normalized bonds :
1-2 1-6 2-3 3-4 4-5 5-6 16-17 16-18

Match level :
1:Atom 2:Atom 3:Atom 4:Atom 5:Atom 6:Atom 7:Atom 8:Atom 9:Atom 10:Atom 11:Atom 12:Atom 13:Atom 14:Atom 15:CLASS 16:CLASS 17:CLASS 18:CLASS 19:Atom 20:Atom 21:Atom

L1 STRUCTURE UPLOADED

=> d
L1 HAS NO ANSWERS
L1 STR



Structure attributes must be viewed using STN Express query preparation.

=> s l1
SAMPLE SEARCH INITIATED 14:41:05 FILE 'REGISTRY'
SAMPLE SCREEN SEARCH COMPLETED - 2 TO ITERATE

100.0% PROCESSED 2 ITERATIONS 0 ANSWERS
SEARCH TIME: 00.00.01

FULL FILE PROJECTIONS: ONLINE **COMPLETE**
BATCH **COMPLETE**
PROJECTED ITERATIONS: 2 TO 124
PROJECTED ANSWERS: 0 TO 0

L2 0 SEA SSS SAM L1

=> s l1 full
FULL SEARCH INITIATED 14:41:09 FILE 'REGISTRY'
FULL SCREEN SEARCH COMPLETED - 87 TO ITERATE

100.0% PROCESSED 87 ITERATIONS 0 ANSWERS
SEARCH TIME: 00.00.01

L3 0 SEA SSS FUL L1

=> file reg
COST IN U.S. DOLLARS SINCE FILE ENTRY TOTAL SESSION
FULL ESTIMATED COST 161.33 161.54

FILE 'REGISTRY' ENTERED AT 14:41:12 ON 13 APR 2005
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Property values tagged with IC are from the ZIC/VINITI data file
provided by InfoChem.

STRUCTURE FILE UPDATES: 12 APR 2005 HIGHEST RN 848391-87-7
DICTIONARY FILE UPDATES: 12 APR 2005 HIGHEST RN 848391-87-7

TSCA INFORMATION NOW CURRENT THROUGH JANUARY 18, 2005

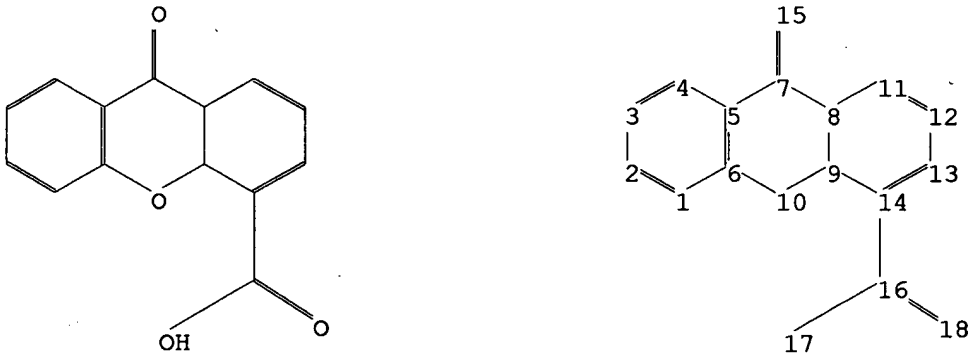
Please note that search-term pricing does apply when conducting SmartSELECT searches.

****
*
* The CA roles and document type information have been removed from *
* the IDE default display format and the ED field has been added, *
* effective March 20, 2005. A new display format, IDERL, is now *
* available and contains the CA role and document type information. *
*
****

Crossover limits have been increased. See HELP CROSSOVER for details.

Experimental and calculated property data are now available. For more information enter HELP PROP at an arrow prompt in the file or refer to the file summary sheet on the web at:
http://www.cas.org/ONLINE/DBSS/registryss.html

=>
Uploading C:\Program Files\Stnexp\Queries\10716732b.str

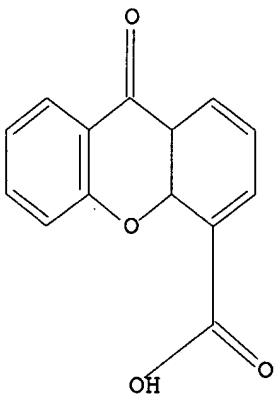


chain nodes :
15 16 17 18
ring nodes :
1 2 3 4 5 6 7 8 9 10 11 12 13 14
chain bonds :
7-15 14-16 16-17 16-18
ring bonds :
1-2 1-6 2-3 3-4 4-5 5-6 5-7 6-10 7-8 8-9 8-11 9-10 9-14 11-12 12-13 13-14
exact/norm bonds :
5-7 6-10 7-8 7-15 8-9 8-11 9-10 9-14 11-12 12-13 13-14
exact bonds :
14-16
normalized bonds :
1-2 1-6 2-3 3-4 4-5 5-6 16-17 16-18

Match level :
1:Atom 2:Atom 3:Atom 4:Atom 5:Atom 6:Atom 7:Atom 8:Atom 9:Atom 10:Atom 11:Atom 12:Atom 13:Atom 14:Atom 15:CLASS 16:CLASS 17:CLASS 18:CLASS

L4 STRUCTURE UPLOADED

=> d
L4 HAS NO ANSWERS
L4 STR



Structure attributes must be viewed using STN Express query preparation.

=> s l4
SAMPLE SEARCH INITIATED 14:41:52 FILE 'REGISTRY'
SAMPLE SCREEN SEARCH COMPLETED - 353 TO ITERATE

100.0% PROCESSED 353 ITERATIONS 1 ANSWERS
SEARCH TIME: 00.00.01

FULL FILE PROJECTIONS: ONLINE **COMPLETE**
BATCH **COMPLETE**
PROJECTED ITERATIONS: 5933 TO 8187
PROJECTED ANSWERS: 1 TO 80

L5 1 SEA SSS SAM L4

=> s l4 full
FULL SEARCH INITIATED 14:41:57 FILE 'REGISTRY'
FULL SCREEN SEARCH COMPLETED - 7332 TO ITERATE

100.0% PROCESSED 7332 ITERATIONS 30 ANSWERS
SEARCH TIME: 00.00.01

L6 30 SEA SSS FUL L4

=> file caplus
COST IN U.S. DOLLARS SINCE FILE ENTRY TOTAL SESSION
FULL ESTIMATED COST 161.33 322.87

FILE 'CAPLUS' ENTERED AT 14:42:01 ON 13 APR 2005
USE IS SUBJECT TO THE TERMS OF YOUR STN CUSTOMER AGREEMENT.
PLEASE SEE "HELP USAGETERMS" FOR DETAILS.

FILE COVERS 1907 - 13 Apr 2005 VOL 142 ISS 16
FILE LAST UPDATED: 12 Apr 2005 (20050412/ED)

This file contains CAS Registry Numbers for easy and accurate substance identification.

=> s l6
L7 28 L6

=> d ibib abs hitstr tot
THE ESTIMATED COST FOR THIS REQUEST IS 138.32 U.S. DOLLARS
DO YOU WANT TO CONTINUE WITH THIS REQUEST? (Y)/N:y

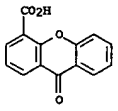
L7 ANSWER 1 OF 28 CAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 1999:228953 CAPLUS
DOCUMENT NUMBER: 131:2694
TITLE: Substituted xanthones as antimycobacterial agents. Part 3. QSAR investigations
AUTHOR(S): Schaper, Klaus-Juergen; Pickert, Martina; Frahm, August Wilhelm
CORPORATE SOURCE: Research Center Borstel, Borstel, D-23845, Germany
SOURCE: Archiv der Pharmazie (Weinheim, Germany) (1999), 332(3), 91-102
CODEN: ARPMAS; ISSN: 0365-6233
PUBLISHER: Wiley-VCH Verlag GmbH
DOCUMENT TYPE: Journal
LANGUAGE: English

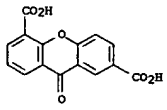
AB Quant. structure activity-relationships between the antituberculous activity of a series of 61 substituted xanthones and their 13C NMR chemical shifts, lipophilicity, and molar refractivities of the substituents were investigated. In addition to these structural parameters, the test concns. of the compds. were considered because of the varying solubility While the multiple linear regression-based adaptive least squares anal. revealed only weak correlations between the antituberculous activity classes of the compds. and their physicochem. parameters, significantly better results were obtained by the artificial neural network technique, which describes nonlinear relationships between the activity as dependent and the physicochem. parameters as independent variables.

IT **42073-77-8 77769-81-4 209461-14-3**
209461-22-3 209461-23-4 209461-24-5
209461-34-7 209461-35-8 209461-36-9
209461-55-2
RL: BAC (Biological activity or effector, except adverse); BSU (Biological study, unclassified); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(QSAR of antituberculosis activity and physicochem. parameters of substituted xanthone derivs.)

RN 42073-77-8 CAPLUS
CN 9H-Xanthene-4-carboxylic acid, 9-oxo- (9CI) (CA INDEX NAME)

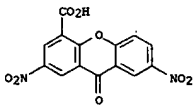


RN 77769-81-4 CAPLUS
CN 9H-Xanthene-2,5-dicarboxylic acid, 9-oxo- (9CI) (CA INDEX NAME)

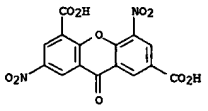


RN 209461-14-3 CAPLUS

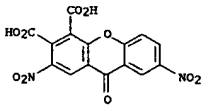
L7 ANSWER 1 OF 28 CAPLUS COPYRIGHT 2005 ACS on STN (Continued)



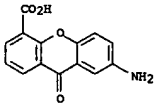
RN 209461-35-8 CAPLUS
CN 9H-Xanthene-2,5-dicarboxylic acid, 4,7-dinitro-9-oxo- (9CI) (CA INDEX NAME)



RN 209461-36-9 CAPLUS
CN 9H-Xanthene-3,4-dicarboxylic acid, 2,7-dinitro-9-oxo- (9CI) (CA INDEX NAME)



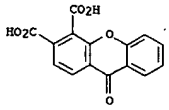
RN 209461-55-2 CAPLUS
CN 9H-Xanthene-4-carboxylic acid, 7-amino-9-oxo- (9CI) (CA INDEX NAME)



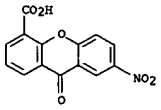
REFERENCE COUNT: 32 THERE ARE 32 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L7 ANSWER 1 OF 28 CAPLUS COPYRIGHT 2005 ACS on STN (Continued)

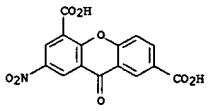
CN 9H-Xanthene-3,4-dicarboxylic acid, 9-oxo- (9CI) (CA INDEX NAME)



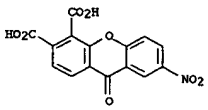
RN 209461-22-3 CAPLUS
CN 9H-Xanthene-4-carboxylic acid, 7-nitro-9-oxo- (9CI) (CA INDEX NAME)



RN 209461-23-4 CAPLUS
CN 9H-Xanthene-2,5-dicarboxylic acid, 7-nitro-9-oxo- (9CI) (CA INDEX NAME)



RN 209461-24-5 CAPLUS
CN 9H-Xanthene-3,4-dicarboxylic acid, 7-nitro-9-oxo- (9CI) (CA INDEX NAME)



RN 209461-34-7 CAPLUS
CN 9H-Xanthene-4-carboxylic acid, 2,7-dinitro-9-oxo- (9CI) (CA INDEX NAME)

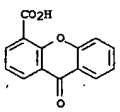
L7 ANSWER 2 OF 28 CAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 1998:485655 CAPLUS
DOCUMENT NUMBER: 129:200410
TITLE: Substituted xanthones as antimycobacterial agents. Part 2. Antimycobacterial activity. [Erratum to document cited in CA129:159024]
AUTHOR(S): Pickert, Martina; Schaper, Klaus Juergen; Frahm, August Wilhelm
CORPORATE SOURCE: Dep. Pharmacy, Fac. Chemistry Pharmacy, Univ. Freiburg, Freiburg/Br., D-79104, Germany
SOURCE: Archiv der Pharmazie (Weinheim, Germany) (1998), 331(6), 230
CODEN: ARPMAS; ISSN: 0365-6233
PUBLISHER: Wiley-VCH Verlag GmbH
DOCUMENT TYPE: Journal
LANGUAGE: English

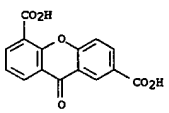
AB On page 195, in line 4i of Table 2 the symbol +++ should replace P in the columns corresponding to the concns. 32 and 16 μg/mL under M. tuberculosis H37RV.

IT **42073-77-8 77769-81-4 209461-14-3**
209461-22-3 209461-23-4 209461-24-5
209461-34-7 209461-35-8 209461-36-9
209461-55-2
RL: BAC (Biological activity or effector, except adverse); BSU (Biological study, unclassified); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(substituted xanthones as antimycobacterial agents (Erratum))

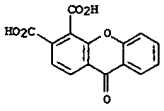
RN 42073-77-8 CAPLUS
CN 9H-Xanthene-4-carboxylic acid, 9-oxo- (9CI) (CA INDEX NAME)



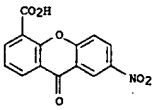
RN 77769-81-4 CAPLUS
CN 9H-Xanthene-2,5-dicarboxylic acid, 9-oxo- (9CI) (CA INDEX NAME)



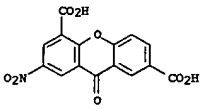
RN 209461-14-3 CAPLUS
CN 9H-Xanthene-3,4-dicarboxylic acid, 9-oxo- (9CI) (CA INDEX NAME)



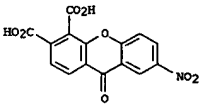
RN 209461-22-3 CAPLUS
CN 9H-Xanthene-4-carboxylic acid, 7-nitro-9-oxo- (9CI) (CA INDEX NAME)



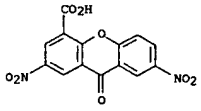
RN 209461-23-4 CAPLUS
CN 9H-Xanthene-2,5-dicarboxylic acid, 7-nitro-9-oxo- (9CI) (CA INDEX NAME)



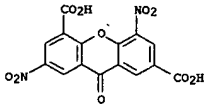
RN 209461-24-5 CAPLUS
CN 9H-Xanthene-3,4-dicarboxylic acid, 7-nitro-9-oxo- (9CI) (CA INDEX NAME)



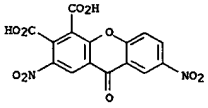
RN 209461-34-7 CAPLUS
CN 9H-Xanthene-4-carboxylic acid, 2,7-dinitro-9-oxo- (9CI) (CA INDEX NAME)



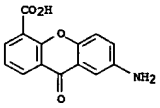
RN 209461-35-8 CAPLUS
CN 9H-Xanthene-2,5-dicarboxylic acid, 4,7-dinitro-9-oxo- (9CI) (CA INDEX NAME)



RN 209461-36-9 CAPLUS
CN 9H-Xanthene-3,4-dicarboxylic acid, 2,7-dinitro-9-oxo- (9CI) (CA INDEX NAME)



RN 209461-55-2 CAPLUS
CN 9H-Xanthene-4-carboxylic acid, 7-amino-9-oxo- (9CI) (CA INDEX NAME)



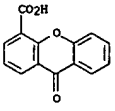
L7 ANSWER 3 OF 28 CAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 1998:403021 CAPLUS
DOCUMENT NUMBER: 129:159024
TITLE: Substituted xanthones as antimycobacterial agents. Part 2. Antimycobacterial activity
AUTHOR(S): Pickert, Martina; Schaper, Klaus Juergen; Frahm, August Wilhelm
CORPORATE SOURCE: Dep. Pharmacy, Fac. Chemistry Pharmacy, Univ. Freiburg, Freiburg/Br., D-79104, Germany
SOURCE: Archiv der Pharmazie (Weinheim, Germany) (1998), 331(5), 193-197
CODEN: ARPMAS; ISSN: 0365-6233
PUBLISHER: Wiley-VCH Verlag GmbH
DOCUMENT TYPE: Journal
LANGUAGE: English

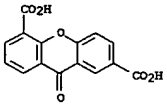
AB Substituted xanthones were tested for their activity against 4 mycobacterial strains (Mycobacterium tuberculosis, M. avium, M. lufu, M. smegmatis) by determination of the min. inhibitory concns. (MIC) values. For the most active compds., supplementary characterization was performed by bacterial growth kinetics, which allows a more precise interpretation of their antimycobacterial effects. From the test set, 1-methyl-2,4,7-trinitroxanthone showed the highest antimycobacterial activity with a MIC value of 3 μg/mL against M. tuberculosis, which is comparable to the effect of well known drugs used in the treatment of tuberculosis. For all other compds., the MIC values were determined, due to the comparatively low activity and to the poor solubility of the compds., resp. The semiquant. evaluation of activity against the different strains of mycobacteria resulted in a classification into 3 activity classes, which will be used as dependent parameter in QSAR investigations, to be published in part 3 of this series.

IT **42073-77-8 77769-81-4 209461-14-3 209461-22-3 209461-23-4 209461-24-5 209461-34-7 209461-35-8 209461-36-9 209461-55-2**
RL: BAC (Biological activity or effector, except adverse); BSU (Biological study, unclassified); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(substituted xanthones as antimycobacterial agents)

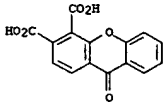
RN 42073-77-8 CAPLUS
CN 9H-Xanthene-4-carboxylic acid, 9-oxo- (9CI) (CA INDEX NAME)



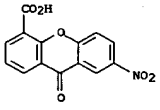
RN 77769-81-4 CAPLUS
CN 9H-Xanthene-2,5-dicarboxylic acid, 9-oxo- (9CI) (CA INDEX NAME)



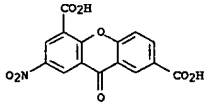
RN 209461-14-3 CAPLUS
CN 9H-Xanthene-3,4-dicarboxylic acid, 9-oxo- (9CI) (CA INDEX NAME)



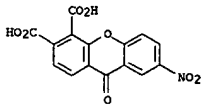
RN 209461-22-3 CAPLUS
CN 9H-Xanthene-4-carboxylic acid, 7-nitro-9-oxo- (9CI) (CA INDEX NAME)



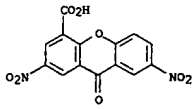
RN 209461-23-4 CAPLUS
CN 9H-Xanthene-2,5-dicarboxylic acid, 7-nitro-9-oxo- (9CI) (CA INDEX NAME)



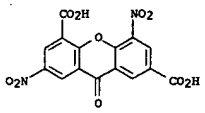
RN 209461-24-5 CAPLUS
CN 9H-Xanthene-3,4-dicarboxylic acid, 7-nitro-9-oxo- (9CI) (CA INDEX NAME)



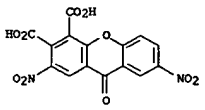
RN 209461-34-7 CAPLUS
CN 9H-Xanthene-4-carboxylic acid, 2,7-dinitro-9-oxo- (9CI) (CA INDEX NAME)



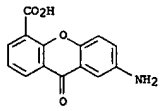
RN 209461-35-8 CAPLUS
CN 9H-Xanthene-2,5-dicarboxylic acid, 4,7-dinitro-9-oxo- (9CI) (CA INDEX NAME)



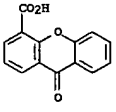
RN 209461-36-9 CAPLUS
CN 9H-Xanthene-3,4-dicarboxylic acid, 2,7-dinitro-9-oxo- (9CI) (CA INDEX NAME)



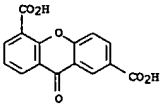
RN 209461-55-2 CAPLUS
CN 9H-Xanthene-4-carboxylic acid, 7-amino-9-oxo- (9CI) (CA INDEX NAME)



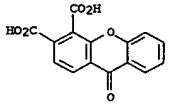
ACCESSION NUMBER: 1998:403020 CAPLUS
DOCUMENT NUMBER: 129:81601
TITLE: Substituted xanthones as antimycobacterial agents. Part 1. Synthesis and assignment of 1H/13C-NMR chemical shifts
AUTHOR(S): Pickert, Martina; Frahm, August Wilhelm
CORPORATE SOURCE: Dep. Pharmacy, Fac. Chemistry Pharmacy, Univ. Freiburg, Freiburg/Br., D-79104, Germany
SOURCE: Archiv der Pharmazie (Weinheim, Germany) (1998), 331(5), 177-192
CODEN: ARPMAS; ISSN: 0365-6233
PUBLISHER: Wiley-VCH Verlag GmbH
DOCUMENT TYPE: Journal
LANGUAGE: English
AB A series of substituted xanthones was synthesized to prove the hypothesis that electron-withdrawing substituents enhance the antimycobacterial activity of these compds., which is described by a QSAR equation with 13C-NMR chemical shifts as independent parameters. The key step of the synthesis is the formation of 2-phenoxybenzoates by Ullmann reaction followed by intramol. Friedel-Crafts acylation, leading to methyl-, carboxy-, nitro-, cyano-, and aminoxanthones as a test set for QSAR investigations. Spectroscopic data (1H and 13C NMR, IR, UV) of these xanthones are presented and analyzed. Specific shift increments for xanthones depending on the substituent position and on the position of the resp. H/C atom as well as additivity rules were developed.
IT **42073-77-8P 77769-81-4P 209461-14-3P 209461-22-3P 209461-23-4P 209461-24-5P 209461-34-7P**
RL: PRP (Properties); RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(preparation, IR, and 1H and 13C NMR of xanthones)
RN 42073-77-8 CAPLUS
CN 9H-Xanthene-4-carboxylic acid, 9-oxo- (9CI) (CA INDEX NAME)



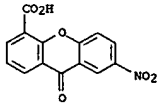
RN 77769-81-4 CAPLUS
CN 9H-Xanthene-2,5-dicarboxylic acid, 9-oxo- (9CI) (CA INDEX NAME)



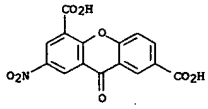
RN 209461-14-3 CAPLUS
CN 9H-Xanthene-3,4-dicarboxylic acid, 9-oxo- (9CI) (CA INDEX NAME)



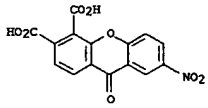
RN 209461-22-3 CAPLUS
CN 9H-Xanthene-4-carboxylic acid, 7-nitro-9-oxo- (9CI) (CA INDEX NAME)



RN 209461-23-4 CAPLUS
CN 9H-Xanthene-2,5-dicarboxylic acid, 7-nitro-9-oxo- (9CI) (CA INDEX NAME)

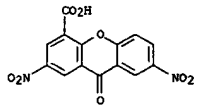


RN 209461-24-5 CAPLUS
CN 9H-Xanthene-3,4-dicarboxylic acid, 7-nitro-9-oxo- (9CI) (CA INDEX NAME)

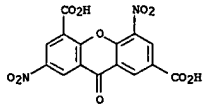


RN 209461-34-7 CAPLUS
CN 9H-Xanthene-4-carboxylic acid, 2,7-dinitro-9-oxo- (9CI) (CA INDEX NAME)

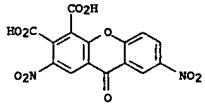
L7 ANSWER 4 OF 28 CAPLUS COPYRIGHT 2005 ACS on STN (Continued)



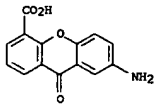
IT **209461-35-8P 209461-36-9P 209461-55-2P**
RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)
(preparation, IR, and 1H and 13C NMR of xanthones)
RN 209461-35-8 CAPLUS
CN 9H-Xanthene-2,5-dicarboxylic acid, 4,7-dinitro-9-oxo- (9CI) (CA INDEX NAME)



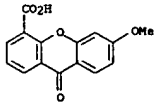
RN 209461-36-9 CAPLUS
CN 9H-Xanthene-3,4-dicarboxylic acid, 2,7-dinitro-9-oxo- (9CI) (CA INDEX NAME)



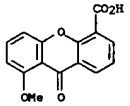
RN 209461-55-2 CAPLUS
CN 9H-Xanthene-4-carboxylic acid, 7-amino-9-oxo- (9CI) (CA INDEX NAME)



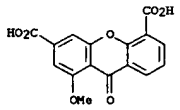
L7 ANSWER 5 OF 28 CAPLUS COPYRIGHT 2005 ACS on STN (Continued)



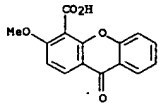
RN 173853-25-3 CAPLUS
CN 9H-Xanthene-4-carboxylic acid, 8-methoxy-9-oxo- (9CI) (CA INDEX NAME)



L7 ANSWER 5 OF 28 CAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 1996:1277 CAPLUS
DOCUMENT NUMBER: 124:175752
TITLE: Studies on synthesis of xanthones, part-9. Synthesis of xanthone carboxylic acids
AUTHOR(S): Vyas, K. D.; Trivedi, K. N.
CORPORATE SOURCE: Faculty Science, M. S. University Baroda, Baroda, 390 002, India
SOURCE: Indian Journal of Heterocyclic Chemistry (1995), 5(1), 1-6
CODEN: IJCHEI; ISSN: 0971-1627
PUBLISHER: Lucknow University, Dep. of Chemistry
DOCUMENT TYPE: Journal
LANGUAGE: English
AB 1,6-Dimethyl-3-methoxyxanthone, 3,5-dimethyl-1-methoxyxanthone and 3,6-dimethyl-1-methoxyxanthone on oxidation with KMnO4 gave mixts. of xanthonecarboxylic acids which were converted to their Me esters and separated by column chromatog. These Me esters on hydrolysis afforded the corresponding xanthonedicarboxylic acids. Methoxymethylxanthones resisted oxidation hence the corresponding hydroxymethylxanthones were oxidized to the corresponding xanthonecarboxylic acids. Structures of the compds. were confirmed by IR and PMR spectra.
IT **173853-15-1P 173853-18-4P 173853-21-9P 173853-25-3P**
RL: SPN (Synthetic preparation); PREP (Preparation)
(preparation of xanthonecarboxylic acids)
RN 173853-15-1 CAPLUS
CN 9H-Xanthene-3,5-dicarboxylic acid, 1-methoxy-9-oxo- (9CI) (CA INDEX NAME)

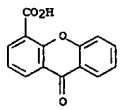


RN 173853-18-4 CAPLUS
CN 9H-Xanthene-4-carboxylic acid, 3-methoxy-9-oxo- (9CI) (CA INDEX NAME)



RN 173853-21-9 CAPLUS
CN 9H-Xanthene-4-carboxylic acid, 6-methoxy-9-oxo- (9CI) (CA INDEX NAME)

L7 ANSWER 6 OF 28 CAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 1995:608135 CAPLUS
DOCUMENT NUMBER: 123:32935
TITLE: Synthesis and Activity against Multidrug Resistance in Chinese Hamster Ovary Cells of New Acridone-4-carboxamides
AUTHOR(S): Dodic, Nerina; Dumaitre, Bernard; Daugan, Alain; Pianetti, Pascal
CORPORATE SOURCE: Centre de Recherches, Laboratories Glaxo, Les Ulis, 91951, Fr.
SOURCE: Journal of Medicinal Chemistry (1995), 38(13), 2418-26
CODEN: JMCMAR; ISSN: 0022-2623
PUBLISHER: American Chemical Society
DOCUMENT TYPE: Journal
LANGUAGE: English
AB A number of tricyclic carboxamides have been synthesized and tested to evaluate their ability to reverse multidrug resistance in the CHRC/5 cell line. Among them the acridone derivs. were the most potent. A key feature is the presence of a dimethoxybenzyl or phenethylamine cationic site, separated from the tricyclic lipophilic part by a carbamoylphenyl chain.
Optimization led to compds. 2 orders of magnitude more active than the prototype inhibitors verapamil and amiodarone. On the basis of in vitro and in vivo activities, 9,10-dihydro-5-methoxy-9-oxo-N-[4-[2-(1,2,3,4-tetrahydro-6,7-dimethoxyisoquinol-2-yl)ethyl]phenyl]-4-acridinecarboxamide has been selected for further development.
IT **42073-77-8**
RL: RCT (Reactant); RACT (Reactant or reagent)
(synthesis and activity against multidrug resistance in Chinese hamster ovary cells of new acridone-4-carboxamides)
RN 42073-77-8 CAPLUS
CN 9H-Xanthene-4-carboxylic acid, 9-oxo- (9CI) (CA INDEX NAME)

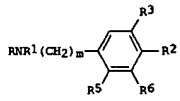


L7 ANSWER 7 OF 28 CAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 1995:257705 CAPLUS
DOCUMENT NUMBER: 122:31342
TITLE: Preparation of anilide derivatives as tumor multidrug resistance inhibitors
INVENTOR(S): Dumaitre, Bernard Andre; Dodic, Nerina; Daugan, Alain Claude Marie; Pianetti, Pascal Maurice Charle
PATENT ASSIGNEE(S): Laboratoires Glaxo S.A., Fr.
SOURCE: PCT Int. Appl., 82 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 9401408	A1	19940120	WO 1993-EP1802	19930708
W: AT, AU, BB, BG, BR, BY, CA, CH, CZ, DE, DK, ES, FI, GB, HU, JP, KP, KR, KZ, LK, LU, MG, MN, MW, NL, NO, NZ, PL, PT, RO, RU, SD, SE, SK, UA, US, VN				
RW: AT, BE, CH, DE, DK, ES, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, ML, MR, NE, SN, TD, TG				
AU 9345671	A1	19940131	AU 1993-45671	19930708
EP 649410	A1	19950426	EP 1993-915865	19930708
EP 649410	B1	19970502		
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IE, IT, LI, LU, MC, NL, PT, SE				
JP 08508974	T2	19960924	JP 1993-502977	19930708
AT 152443	E	19970515	AT 1993-915865	19930708
ES 2103479	T3	19970916	ES 1993-915865	19930708
US 5663179	A	19970902	US 1994-356323	19941229

PRIORITY APPLN. INFO.: GB 1992-14667 A 19920710
GB 1992-14668 A 19920710
GB 1992-14675 A 19920710
WO 1993-EP1802 A 19930708

OTHER SOURCE(S): MARPAT 122:31342
GI

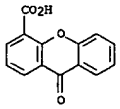


I

AB Title compds. [I; R = ZCONHZ1ABCH2; A = O, S, bond, NH, etc.; B = (hydroxy)alkylene; R1 = H, alkyl; R2 = H, halo, alkyl, alkoxy, alkylthio; R3,R6 = H, alkoxy; R4 = H, alkyl, alkoxy; R5 = H; R1R5 = CH2, CH2CH2; Z = heterocyclyl, (substituted) 3-(PhCO)C6H4, etc.; Z1 = (substituted) 1,3- or 1,4-phenylene; m = 1 or 2] were prepared. Thus, 2-quinoxalinecarboxylic acid was condensed with 4-[3-(1,2,3,4-tetrahydro-6,7-dimethoxy-2-isoquinolinyl)propyl]benzeneamine to give N-[4-[3-(1,2,3,4-tetrahydro-6,7-dimethoxy-2-isoquinolinyl)propyl]phenyl]-2-quinoxalinecarboxamide. I had EC50 of <1μM for reversal of multidrug resistance of CHRC5 cells in vitro.

IT **42073-77-8**, 9-Oxoxanthene-4-carboxylic acid
RL: RCT (Reactant); RACT (Reactant or reagent)

L7 ANSWER 7 OF 28 CAPLUS COPYRIGHT 2005 ACS on STN (Continued)
(reaction of, in prepn. of multidrug resistance inhibitor)
RN 42073-77-8 CAPLUS
CN 9H-Xanthene-4-carboxylic acid, 9-oxo- (9CI) (CA INDEX NAME)

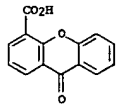


L7 ANSWER 8 OF 28 CAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 1994:644972 CAPLUS
DOCUMENT NUMBER: 121:244972
TITLE: Disposition of the novel antitumor agent xanthenone-4-acetic acid in the mouse: identification of metabolites and routes of elimination
AUTHOR(S): Kestell, P.; Rewcastle, G. W.; Baguley, B. C.
CORPORATE SOURCE: Sch. Medicine, Univ. Auckland, Auckland, N. Z.
SOURCE: Xenobiotica (1994), 24(7), 635-47
CODEN: XENOBH; ISSN: 0049-8254
DOCUMENT TYPE: Journal
LANGUAGE: English

AB Xanthenone-4-acetic acid (XAA) is an exptl. antitumor agent which resembles flavone-8-acetic acid in its induction of cytokine synthesis, nitric oxide-production and tumor hemorrhagic necrosis. The authors have investigated the excretion and metabolic fate of XAA in the BDF1 mouse. XAA was administered i.v. at the maximal tolerated dose (1090 μmol/kg). Urine, plasma and bile were collected and subjected to anal. by HPLC. Urine samples demonstrated labile metabolites which released XAA following incubation with β-glucuronidase/sulphatase or at pH 9.0. The structures of isolated XAA metabolites were characterized by MS or 1H-NMR spectra at 400 MHz. The major metabolite pathway of XAAS involves conjugation with glucuronic acid, since the resulting metabolite, XA acyl glucuronide, accounts for 25% of the dose excreted in the urine. Other metabolite pathways include α-oxidation of the acetic acid side chain and aromatic hydroxylation of the xanthenone ring.

IT **42073-77-8**
RL: BIOL (Biological study)
(formation and characterization of, as xanthenoneacetic acid metabolite in urine)

RN 42073-77-8 CAPLUS
CN 9H-Xanthene-4-carboxylic acid, 9-oxo- (9CI) (CA INDEX NAME)

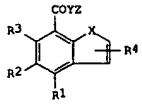


L7 ANSWER 9 OF 28 CAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 1994:508534 CAPLUS
DOCUMENT NUMBER: 121:108534
TITLE: Preparation of heterocyclic condensed benzoic acid derivatives as 5-HT4 receptor antagonists
INVENTOR(S): Gaster, Laramie Mary; Mulholland, Keith Raymond
PATENT ASSIGNEE(S): Smithkline Beecham PLC, UK
SOURCE: PCT Int. Appl., 31 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 9408995	A1	19940428	WO 1993-EP2809	19931012
W: AT, AU, BB, BG, BR, BY, CA, CH, CZ, DE, DK, ES, FI, GB, HU, JP, KP, KR, KZ, LK, LU, MG, MN, MW, NL, NO, NZ, PL, PT, RO, RU, SD, SE, SK, UA, US, VN				
RW: AT, BE, CH, DE, DK, ES, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, ML, MR, NE, SN, TD, TG				
ZA 9307507	A	19940722	ZA 1993-7507	19931011
CA 2146923	AA	19940428	CA 1993-2146923	19931012
AU 9453695	A1	19940509	AU 1994-53695	19931012
CN 1092421	A	19940921	CN 1993-114856	19931012
EP 664806	A1	19950802	EP 1993-924035	19931012
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IE, IT, LI, LU, MC, NL, PT, SE				
JP 08502275	T2	19960312	JP 1993-509616	19931012

PRIORITY APPLN. INFO.: GB 1992-21482 A 19921013
GB 1992-21769 A 19921016
GB 1992-23137 A 19921105
GB 1992-23139 A 19921105
WO 1993-EP2809 W 19931012

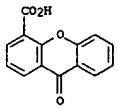
OTHER SOURCE(S): MARPAT 121:108534
GI



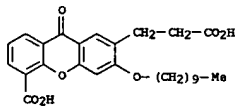
I

AB Title compds. I (X = O, S; R1 = H, H2N, halo, C1-6 alkyl, HO, C1-6 alkoxy; R2 = H, halo, C1-6 alkyl, C1-6 alkoxy, O2N, H2N, C1-6 alkylthio; R3 = H, halo, C1-6 alkyl, C1-6 alkoxy, H2N; R4 = H, C1-6 alkyl, substituted heterocyclyl; Y = HN, O; Z = (substituted) aminoalkyl, substituted heterocyclyl) and a salt thereof, for use as 5-HT4 receptor antagonists in treatment or prophylaxis of gastrointestinal-, cardiovascular-, and CNS disorders (no data for the disorders), are prepared. Benzothiophene-7-carboxylic acid (preparation given) and 2,3-dihydrobenzothiophene-7-carboxylic acid in DMF was treated with 1,1-carbonyldiimidazole followed by N-butyl-4-piperidinylmethanol in THF to give I (X = O, R1 = R3 = R4 = H, R2 = Cl, Y = HN, Z = 1-butyl-4-piperidinylmethyl). The pIC50 (-log concentration

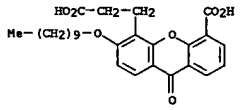
L7 ANSWER 9 OF 28 CAPLUS COPYRIGHT 2005 ACS on STN (Continued)
of antagonist which reduces the contraction by 50%) of I using guinea pig colon was at least 7.
IT **42073-77-8**
RL: RCT (Reactant); RACT (Reactant or reagent)
(reaction of, in preparation of 5-HT4 antagonists)
RN 42073-77-8 CAPLUS
CN 9H-Xanthene-4-carboxylic acid, 9-oxo- (9CI) (CA INDEX NAME)



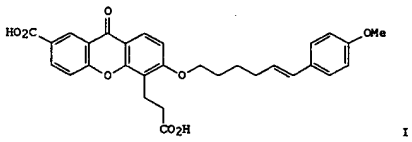
L7 ANSWER 10 OF 28 CAPLUS COPYRIGHT 2005 ACS on STN (Continued)



RN 135199-80-3 CAPLUS
CN 9H-Xanthene-4-propanoic acid, 5-carboxy-3-(decyloxy)-9-oxo- (9CI) (CA INDEX NAME)



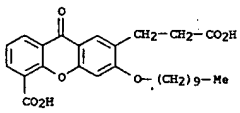
L7 ANSWER 10 OF 28 CAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 1993:472462 CAPLUS
DOCUMENT NUMBER: 119:72462
TITLE: Design, synthesis, and pharmacological evaluation of potent xanthone dicarboxylic acid leukotriene B4 receptor antagonists
AUTHOR(S): Jackson, William T.; Boyd, Robert J.; Froelich, Larry L.; Gapinski, D. Mark; Mallett, Barbara E.; Sawyer, J. Scott
CORPORATE SOURCE: Lilly Res. Lab., Eli Lilly and Co., Indianapolis, IN, 46285, USA
SOURCE: Journal of Medicinal Chemistry (1993), 36(12), 1726-34
CODEN: JMCMAR; ISSN: 0022-2623
DOCUMENT TYPE: Journal
LANGUAGE: English
GI



I

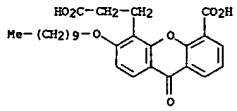
AB In an effort to develop increasingly potent and specific leukotriene B4 (LTB4) receptor antagonists, several xanthone dicarboxylic acids, e.g. I, were synthesized and evaluated. Two sep. synthetic routes were used to construct a xanthone nucleus containing a regiospecific orientation of each carboxylic acid pharmacophore. These compds. represent the major conformationally-restricted analogs of benzophenone dicarboxylic acids previously shown to antagonize the activation of human neutrophils by LTB4. The most potent agent was compound I, which inhibited the specific binding of [3H]LTB4 to receptors on intact human neutrophiles (IC50, 6.2 ± 0.1 nM), LTB4-induced luminol-dependent chemiluminescence (IC50, 55 ± 11 nM), aggregation (IC50, 133 ± 42 nM), and chemotaxis (IC50, 899 ± 176 nM). The compound was a poor antagonist of N-formyl-L-methionyl-L-leucyl-L-phenylalanine-induced chemiluminescence (IC50, 1599 ± 317 nM) and aggregation (IC50, 2166 ± 432 nM), indicating specificity in the inhibition of LTB4-stimulated events. Compound I (LY210073), which was completely devoid of agonist activity, appears to be one of the strongest inhibitors of LTB4 receptor binding reported so far.
IT **135199-79-0P 135199-80-3P**
RL: SPN (Synthetic preparation); PREP (Preparation)
(preparation and leukotriene B4 receptor antagonist activity of)
RN 135199-79-0 CAPLUS
CN 9H-Xanthene-2-propanoic acid, 5-carboxy-3-(decyloxy)-9-oxo- (9CI) (CA INDEX NAME)

L7 ANSWER 11 OF 28 CAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 1993:16418 CAPLUS
DOCUMENT NUMBER: 118:16418
TITLE: Characterization of the spatial arrangement of the two acid-binding sites on the human neutrophil LTB4 receptor
AUTHOR(S): Chaney, M. O.; Froelich, L. L.; Gapinski, D. M.; Mallett, B. E.; Jackson, W. T.
CORPORATE SOURCE: Lilly Res. Lab., Eli Lilly and Co., Indianapolis, IN, 46285, USA
SOURCE: Receptor (1992), 2(3), 169-79
CODEN: RECEE5; ISSN: 1052-8040
DOCUMENT TYPE: Journal
LANGUAGE: English
AB Lipophilic benzophenone dicarboxylic acids have been shown to be inhibitors of the binding of LTB4 to its receptors on intact human neutrophils (Gapinski et al., 1990). Structure-activity relations indicated that maximum activity was achieved when an acid group was attached at the meta position of each ring. In this report, the conformation of these inhibitors that binds best to the LTB4 receptor was determined Inhibition concentration profiles of 4 rigid xanthone isomers that mimicked the 4 major conformational states of this type of benzophenone dicarboxylic acid were compared. LY264086, 3-[4-[7-carboxy-3-[decyloxy]-9-oxo-9H-xanthene]]propanoic acid, was the most potent inhibitor. The distance between the 2 carboxyl groups in this isomer was 9.8 Å, implying that the 2 acid binding sites on the receptor are separated by similar dimensions.
Mol. modeling studies with low energy conformers of the xanthone isomers and LTB4 suggested a configuration of the agonist when it is bound to the receptor, but did not exclude all other possibilities. These expts. further support the existence of 2 acid-binding sites on the human neutrophil LTB4 receptor.
IT **135199-79-0**, LY 278277 **135199-80-3**, LY 278278
RL: BIOL (Biological study)
(LTB4 receptor binding affinity for, mol. structure in relation to)
RN 135199-79-0 CAPLUS
CN 9H-Xanthene-2-propanoic acid, 5-carboxy-3-(decyloxy)-9-oxo- (9CI) (CA INDEX NAME)



RN 135199-80-3 CAPLUS
CN 9H-Xanthene-4-propanoic acid, 5-carboxy-3-(decyloxy)-9-oxo- (9CI) (CA INDEX NAME)

L7 ANSWER 11 OF 28 CAPLUS COPYRIGHT 2005 ACS on STN (Continued)



L7 ANSWER 12 OF 28 CAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 1991:535918 CAPLUS
DOCUMENT NUMBER: 115:135918
TITLE: Preparation and formulation of xanthene compounds as leukotriene antagonists
INVENTOR(S): Gapinski, D. Mark
PATENT ASSIGNEE(S): Eli Lilly and Co., USA
SOURCE: U.S., 15 pp.
CODEN: USXXAM
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 4996230	A	19910226	US 1990-481413	19900216
FI 9100728	A	19910817	FI 1991-728	19910214
EP 442748	A1	19910821	EP 1991-301217	19910214
EP 442748	B1	19950111		
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE				
CN 1054066	A	19910828	CN 1991-100939	19910214
CN 1028639	B	19950531		
JP 04211037	A2	19920803	JP 1991-42992	19910214
ZA 9101111	A	19921028	ZA 1991-1111	19910214
NO 9100608	A	19910819	NO 1991-608	19910215
NO 177097	B	19950410		
NO 177097	C	19950719		
AU 9171103	A1	19910822	AU 1991-71103	19910215
AU 631482	B2	19921126		
HU 56359	A2	19910828	HU 1991-521	19910215
HU 208431	B	19931028		
RU 2007401	C1	19940215	RU 1991-4894418	19910215
CA 2036523	AA	19910817	CA 1991-2036523	19910218

PRIORITY APPLN. INFO.: US 1990-481413 A 19900216
OTHER SOURCE(S): MARPAT 115:135918
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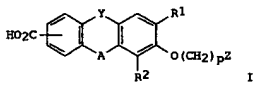
L7 ANSWER 12 OF 28 CAPLUS COPYRIGHT 2005 ACS on STN (Continued)



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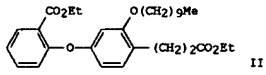

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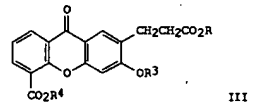
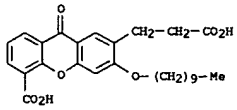


III

AB Xanthene derivs. [I; A = bond, O; Y = CO, C:NOH, CH(OH), CH2 C(:CH2); one of R1 and R2 is H, the other is CH2CH2CO2H; p = 1-16; Z = H, GQ wherein G = bond, O, S, SO, SO2, NH, CH:CH, C.tplbond.C, Q = (substituted) Ph] are prepared To a solution of 0.7 g diester II in CH2Cl2 were added AlCl3 and oxalyl chloride with stirring to give xanthene derivative III (R = R4 = Et, R3 = H), which was etherified with decyl iodide and K2CO3 in MeCOEt at reflux to give 141 mg ether diester III (R = R4 = Et, R3 = decyl) (IV). Saponification of 130 mg IV with KOH in aqueous EtOH gave 60 µg ether diacid III (R = R4 = H, R3 = decyl), which showed 25% inhibition of binding of [3H]-LTB4 to peripheral human neutrophiles at 10-6M. Six addnl. xanthenes and a fluorene derivative were also prepared and tested. Tablet, capsule, aerosol, etc., formulations were given.

IT **135199-79-0P 135199-80-3P**
RL: BAC (Biological activity or effector, except adverse); BSU (Biological study, unclassified); SPN (Synthetic preparation); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(preparation of, as leukotriene antagonist)

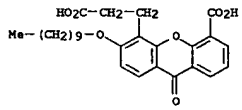
RN 135199-79-0 CAPLUS
CN 9H-Xanthene-2-propanoic acid, 5-carboxy-3-(decyloxy)-9-oxo- (9CI) (CA INDEX NAME)



RN 135199-80-3 CAPLUS

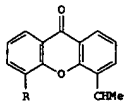
L7 ANSWER 12 OF 28 CAPLUS COPYRIGHT 2005 ACS on STN (Continued)

CN 9H-Xanthene-4-propanoic acid, 5-carboxy-3-(decyloxy)-9-oxo- (9CI) (CA INDEX NAME)



L7 ANSWER 13 OF 28 CAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 1991:535875 CAPLUS
DOCUMENT NUMBER: 115:135875
TITLE: Potential antitumor agents. 63. Structure-activity relationships for side-chain analogs of the colon 38 active agent 9-oxo-9H-xanthene-4-acetic acid
AUTHOR(S): Rewcastle, Gordon W.; Atwell, Graham J.; Baguley, Bruce C.; Boyd, Maruta; Thomsen, Lindy L.; Zhuang, Li; Denny, William A.
CORPORATE SOURCE: Sch. Med., Univ. Auckland, Auckland, N. Z.
SOURCE: Journal of Medicinal Chemistry (1991), 34(9), 2864-70
CODEN: JMCMAR; ISSN: 0022-2623
DOCUMENT TYPE: Journal
LANGUAGE: English
GI



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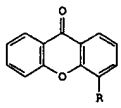
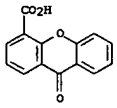


II

AB The title compds. I (R = H, Me) and II (e.g. R = CO2H, CH2CH2CO2H, OCH2CO2H, CH2SO3H, CH2CO2CH2CH2NMe2) were prepared and evaluated for their ability to cause early hemorrhagic necrosis of colon 38 tumors in mice. The results extend the previous structure-activity relationship for this class and confirm the necessity for a CO2H group in a fixed disposition with respect to the xanthenone chromophore. None of the compds. showed superior potency to 9-oxo-9H-xanthene-4-acetic acid, with virtually all alterations in the nature of the anionic center or its geometry with respect to the chromophore greatly reducing or abolishing activity. Both enantiomers of I (R = Me) were active, but S-(+)-I (R = Me) was much more dose-potent than the R-(-)-I (R = Me), in both the in vivo tumor necrosis assay and an in vitro assay measuring the stimulation of nitric oxide production by macrophages. This suggests that the enantiomers have different intrinsic activities, rather than differing in their vivo metabolism

IT 42073-77-8P
RL: BAC (Biological activity or effector, except adverse); BSU (Biological study, unclassified); SPN (Synthetic preparation); BIOL (Biological study); PREP (Preparation)
(preparation and antitumor activity of)

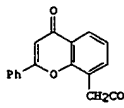
RN 42073-77-8 CAPLUS
CN 9H-Xanthene-4-carboxylic acid, 9-oxo- (9CI) (CA INDEX NAME)



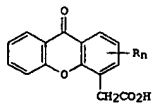
L7 ANSWER 13 OF 28 CAPLUS COPYRIGHT 2005 ACS on STN (Continued)

L7 ANSWER 14 OF 28 CAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 1990:503264 CAPLUS
DOCUMENT NUMBER: 113:103264
TITLE: Light-induced breakdown of flavoneacetic acid and xanthenone analogs in solution
AUTHOR(S): Rewcastle, Gordon W.; Kestell, Phillip; Baguley, Bruce C.; Denny, William A.
CORPORATE SOURCE: Sch. Med., Univ. Auckland, Auckland, N. Z.
SOURCE: Journal of the National Cancer Institute (1990), 82(6), 528-9
CODEN: JNCIEQ; ISSN: 0027-8874
DOCUMENT TYPE: Journal
LANGUAGE: English
GI



I

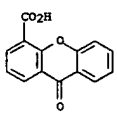


II

AB Since Na salts of flavoneacetic acid (I) and xanthenone-4-acetic acid derivs. (II, R = H, Me, Cl, OMe, OH, n = 1 or 2) were observed to form insol. white ppts. in solns., the photochem. decarboxylation of these compds. was studied. The decarboxylation rate observed for II derivs. was faster than that for I. In an antitumor study in mice, OH groups in II prevented decarboxylation and destroyed activity. Me and Cl groups accelerated decarboxylation regardless of their position, but had varying effects on antitumor activity. The effect of MeO groups was position dependent. Although no direct correlation was found, the most dose-potent antitumor analogs tended to decarboxylate at faster rates.

IT 42073-77-8
RL: BAC (Biological activity or effector, except adverse); BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(antitumor activity of, photochem. decarboxylation in relation to)

RN 42073-77-8 CAPLUS
CN 9H-Xanthene-4-carboxylic acid, 9-oxo- (9CI) (CA INDEX NAME)

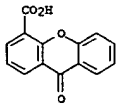


IT 129095-10-9
RL: RCT (Reactant); RACT (Reactant or reagent)
(photochem. decarboxylation of, antitumor activity in relation to)

RN 129095-10-9 CAPLUS

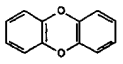
L7 ANSWER 14 OF 28 CAPLUS COPYRIGHT 2005 ACS on STN (Continued)

CN 9H-Xanthene-4-carboxylic acid, 9-oxo-, sodium salt (9CI) (CA INDEX NAME)



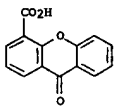
● Na

L7 ANSWER 15 OF 28 CAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 1988:142835 CAPLUS
DOCUMENT NUMBER: 108:142835
TITLE: Potential antitumor agents. 54. Chromophore requirements for in vivo antitumor activity among the general class of linear tricyclic carboxamides
AUTHOR(S): Palmer, Brian D.; Rewcastle, Gordon W.; Atwell, Graham J.; Baguley, Bruce C.; Denny, William A.
CORPORATE SOURCE: Sch. Med., Univ. Auckland, Auckland, N. Z.
SOURCE: Journal of Medicinal Chemistry (1988), 31(4), 707-12
CODEN: JMCMAR; ISSN: 0022-2623
DOCUMENT TYPE: Journal
LANGUAGE: English
OTHER SOURCE(S): CASREACT 108:142835
GI

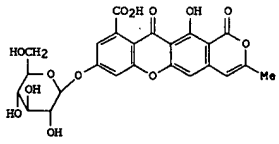


I

AB Structure-antitumor activity relationships are reported for a number of different examples (acridine, phenazine, anthracene, acridone, xanthenone, thioxanthenone, anthraquinone, pyridoquinazoline, dibenzodioxin, thianthrene, phenothiazine, phenoxazine, dibenzofuran, carbazole, and pyridoindole) of the general class of N-[2-(dimethylamino)ethyl] linear tricyclic carboxamides. Only the compds. containing coplanar chromophores intercalated DNA. There is an absolute requirement for an O or aromatic N (possibly as H bond acceptors) peri to the carboxamide, together with a planar ring geometry for biol. activity. In addition to further delineating the nature of the pharmacophore for this class of compds., the work has also identified dibenzo[1,4]dioxin (I) as a novel DNA-intercalating chromophore with in vivo antitumor activity.
IT **42073-77-8P**
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(preparation and reaction with dimethylethylenediamine)
RN 42073-77-8 CAPLUS
CN 9H-Xanthene-4-carboxylic acid, 9-oxo- (9CI) (CA INDEX NAME)

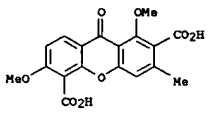


L7 ANSWER 16 OF 28 CAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 1982:507082 CAPLUS
DOCUMENT NUMBER: 97:107082
TITLE: Fungus pigments. 40. Leprocybin, the fluorescent principle of Cortinarius cotoneus and related leprocybes (Agaricales)
AUTHOR(S): Kopanski, Lothar; Klaar, Manfred; Steglich, Wolfgang
CORPORATE SOURCE: Inst. Org. Chem. Biochem., Univ. Bonn, Bonn, D-5300/1, Fed. Rep. Ger.
SOURCE: Liebigs Annalen der Chemie (1982), (7), 1280-96
CODEN: LACHDL; ISSN: 0170-2041
DOCUMENT TYPE: Journal
LANGUAGE: German
GI



I

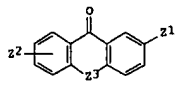
AB Leprocybin (I) a glucoside responsible for the yellow-green fluorescence of the fruiting bodies under UV light was isolated from Cortinarius toadstools (subgenus Leprocybe, section Leprocybe). On acid hydrolysis or action of β-glucosidase I was split into its aglycon leprocyboside, the constitution of which was elucidated by several derivatizations, decarboxylation, and alkaline degradation Final structural proof of the pyranoxanthone system was obtained by synthesis of 8-O-methyl(decarboxy)leprocyboside.
IT **82850-64-4P**
RL: SPN (Synthetic preparation); PREP (Preparation)
(preparation of)
RN 82850-64-4 CAPLUS
CN 9H-Xanthene-2,5-dicarboxylic acid, 1,6-dimethoxy-3-methyl-9-oxo- (9CI) (CA INDEX NAME)



L7 ANSWER 17 OF 28 CAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 1981:214626 CAPLUS
DOCUMENT NUMBER: 94:214626
TITLE: Pharmaceutical composition containing acridone and xanthone compounds
INVENTOR(S): Gorvin, John H.
PATENT ASSIGNEE(S): Burroughs Wellcome Co., USA
SOURCE: U.S., 14 pp. Division of U.S. 3,950,342.
CODEN: USXXAM
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 3
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 4250182	A	19810210	US 1975-643603	19751222
CA 1009660	A1	19770503	CA 1972-151209	19720907
US 3950342	A	19760413	US 1973-338578	19730306
US 3987088	A	19761019	US 1973-338414	19730306
AT 7502942	A	19761015	AT 1975-2942	19750417
AT 337169	B	19770610		
AT 7502941	A	19761115	AT 1975-2941	19750417
AT 337680	B	19770711		
CA 1009576	A2	19770503	CA 1975-238615	19751027
FI 7600877	A	19760401	FI 1976-877	19760401
PRIORITY APPLN. INFO.:			GB 1972-8609	A 19720224
			GB 1972-8610	A 19720224
			US 1972-287043	A2 19720709
			GB 1972-39940	A 19720829
			GB 1972-40079	A 19720829
			GB 1972-41852	A 19721108
			US 1973-338578	A3 19730306
			GB 1971-41852	A 19710908
			GB 1972-8608	A 19720224
			GB 1972-14909	A 19720329
			GB 1972-35818	A 19720801
			GB 1972-33939	A 19720829
			AT 1972-7680	A 19720907
			CA 1972-151209	A3 19720907
			FI 1972-2465	A 19720907
			US 1972-287042	A2 19720907

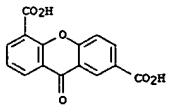
GI



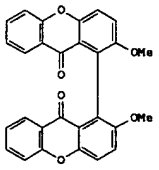
I

AB Acridone and xanthones I (Z1 = carboxyl, its salts, esters or amides; Z2 = same as Z1, H, NO2, CN, halo, acyl, alkyl, etc.; Z3 = O or NR where R = H or C1-4 alkyl) are useful for the relief or prophylaxis of allergic conditions. Xanthone 2,6-dicarboxylic acid (II) [33872-64-9] was prepared by the hydrolyzing 9-oxoxanthene 2,6-dicarbonitrile [52156-60-2].

L7 ANSWER 17 OF 28 CAPLUS COPYRIGHT 2005 ACS on STN (Continued)
Alternatively, I was also prepd. by H2SO4 hydrolysis and cyclization of 2,5,4'-tricyanodiphenyl ether [42946-44-1] which was obtained by the condensation of p-NaOC6H4CN [3328-57-2] and 2-nitroterephthalodinitrile [4193-70-8]. A lotion for topical use was prepd. from II di-Na salt [42946-47-4] 1.5, sorbitan monolaurate 0.6, polysorbate 20, 0.6 cetostearyl alc. 1.2, glycerin 6, and Me hydroxybenzoate .apprx.0.2 g.
IT **77769-81-4P**
RL: PREP (Preparation)
(preparation of, for antiallergic pharmaceuticals)
RN 77769-81-4 CAPLUS
CN 9H-Xanthene-2,5-dicarboxylic acid, 9-oxo- (9CI) (CA INDEX NAME)



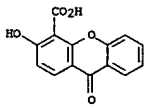
L7 ANSWER 18 OF 28 CAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 1979:121350 CAPLUS
DOCUMENT NUMBER: 90:121350
TITLE: Studies in xanthones. Part I. Synthesis of some iodo- and cyanoxanthones and bixanthonyls
AUTHOR(S): Gaekwad, Y. G.; Sethna, Suresh
CORPORATE SOURCE: Fac. Sci., Maharaja Sayajirao Univ. Baroda, Baroda, India
SOURCE: Journal of the Indian Chemical Society (1978), 55(8), 794-800
CODEN: JICSAH; ISSN: 0019-4522
DOCUMENT TYPE: Journal
LANGUAGE: English
OTHER SOURCE(S): CASREACT 90:121350
GI



IV

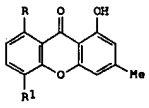
AB Iodination of 2-hydroxyxanthone (I), 3-hydroxyxanthone, 3,6-dihydroxyxanthone (II), and 3-hydroxy-6-methoxyxanthone by iodine-HIO3 or iodine-NH4OH gave iodo derivs., the structures of which were determined by alternative preparation and NMR spectroscopy. Thus, I gave only 2-hydroxy-1-iodoxanthone (III), whereas II gave 3,6-dihydroxy-4-iodoxanthone, 3,6-dihydroxy-4,5-diiodoxanthone, 3,6-dihydroxy-2,4,5-triodoxanthone and 3,6-dihydroxy-2,4,5,7-tetraiodoxanthone. Me ethers of the iodoxanthone alcs. underwent Rosenmund-von Braun cyanation to give nitriles. Thus, the Me ether of III gave 2-methoxy-1-cyanoxanthone. The bixanthone IV was prepared by Ullmann coupling reaction of the Me ether of III.

IT **69202-95-5P**
RL: SPN (Synthetic preparation); PREP (Preparation)
(preparation of)
RN 69202-95-5 CAPLUS
CN 9H-Xanthene-4-carboxylic acid, 3-hydroxy-9-oxo- (9CI) (CA INDEX NAME)



L7 ANSWER 18 OF 28 CAPLUS COPYRIGHT 2005 ACS on STN (Continued)

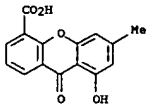
L7 ANSWER 19 OF 28 CAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 1977:72363 CAPLUS
DOCUMENT NUMBER: 86:72363
TITLE: Chemical investigations on Cassia occidentalis Linn.: Part IV. Syntheses of 5-carbomethoxy-1-hydroxy-3-methyl- and 8-carbomethoxy-1-hydroxy-3-methylxanthones as possible degradation products of cassiollin
AUTHOR(S): Kudav, N. A.; Trivedi, B. K.; Kulkarni, A. B.
CORPORATE SOURCE: Dep. Chem., Univ. Bombay, Bombay, India
SOURCE: Indian Journal of Chemistry, Section B: Organic Chemistry Including Medicinal Chemistry (1976), 14B(5), 336-8
CODEN: IJSBDB; ISSN: 0376-4699
DOCUMENT TYPE: Journal
LANGUAGE: English
GI



I, R=CO2Me, R1=H
II, R=H, R1=CO2Me

AB 8-Carbomethoxy- (I) and 5-carbomethoxy-1-hydroxy-3-methylxanthone (II) were prepared from orcinol (III). Condensation of III with 3-hydroxyphthalic acid in the presence of ZnCl2-POCl3 and esterification with CH2N2 gave I. Similarly condensation of III and 2-hydroxyisophthalic and esterification with MeOH gave II.

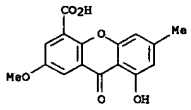
IT **61822-25-1P**
RL: SPN (Synthetic preparation); PREP (Preparation)
(preparation and esterification)
RN 61822-25-1 CAPLUS
CN 9H-Xanthene-4-carboxylic acid, 8-hydroxy-6-methyl-9-oxo- (9CI) (CA INDEX NAME)



L7 ANSWER 20 OF 28 CAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 1975:111913 CAPLUS
DOCUMENT NUMBER: 82:111913
TITLE: Chemical investigations on Cassia occidentalis. III. Synthesis of 5-carbomethoxy-1,7-dimethoxy-3-methylxanthone and the structure of cassiollin
AUTHOR(S): Kudav, N. A.; Trivedi, B. K.; Kulkarni, A. B.
CORPORATE SOURCE: Dep. Chem., Univ. Bombay, Bombay, India
SOURCE: Indian Journal of Chemistry (1974), 12(10), 1045-9
CODEN: IJOCAP; ISSN: 0019-5103
DOCUMENT TYPE: Journal
LANGUAGE: English
GI For diagram(s), see printed CA Issue.

AB The synthesis of 5-carbomethoxy-1,7-dimethoxy-3-methylxanthone (I) and model xanthones related to this structure is reported. The synthesis of I involves the initial condensation of 2-hydroxy-5-methoxyisophthalic acid with orcinol in the presence of ZnCl2-POCl3 to give 1-hydroxy-7-methoxy-3-methylxanthone-5-carboxylic acid (II). Methylation of II affords I. The synthetic I is not identical with cassiollin dimethyl ether obtained by the methylation of natural cassiollin, thereby ruling out the 5-carbomethoxy structure (III) for cassiollin which is now formulated as 8-carbomethoxy-1,7-dihydroxy-3-methylxanthone (IV). The phys. and chemical evidences together with the identity of cassiollin with pinselin, which has been assigned the structure (IV), support the formulation of cassiollin as IV.

IT **55158-85-5P**
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(preparation and methylation of)
RN 55158-85-5 CAPLUS
CN 9H-Xanthene-4-carboxylic acid, 8-hydroxy-2-methoxy-6-methyl-9-oxo- (9CI) (CA INDEX NAME)



L7 ANSWER 21 OF 28 CAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 1973:405347 CAPLUS
DOCUMENT NUMBER: 79:5347
TITLE: [(1H-Tetrazol-5-yl)carbamoyl]anthraquinones, -xanthones, and -chromones
INVENTOR(S): Ellis, Gwynn Pennant; Peel, Mervyn Evan
PATENT ASSIGNEE(S): Allen and Hanburys Ltd.
SOURCE: Ger. Offen., 23 pp.
CODEN: GWXXBX
DOCUMENT TYPE: Patent
LANGUAGE: German
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
DE 2249100	A1	19730412	DE 1972-2249100	19721006
GB 1409656	A	19751008	GB 1971-46937	19720927
ZA 7206667	A	19730627	ZA 1972-6667	19720929
US 3887574	A	19750603	US 1972-293578	19720929
CA 999859	A1	19761116	CA 1972-152855	19720929
IL 40475	A1	19760331	IL 1972-40475	19721002
BE 789822	A1	19730406	BE 1972-122884	19721006
FR 2158210	A1	19730615	FR 1972-35558	19721006
AU 7247494	A1	19740411	AU 1972-47494	19721006
AT 318610	B	19741111	AT 1972-8607	19721006
NO 134256	B	19760531	NO 1972-3580	19721006
CH 588476	A	19770615	CH 1972-14626	19721006
DK 135896	B	19770711	DK 1972-4955	19721006
SE 404924	C	19790215	SE 1972-12954	19721006
SE 404924	B	19781106		
JP 48044259	A2	19730626	JP 1972-101064	19721007
JP 56034593	B4	19810811		
NL 7213659	A	19730410	NL 1972-13659	19721009

PRIORITY APPLN. INFO.: GB 1971-46937 A 19711008

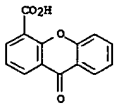
GI For diagram(s), see printed CA Issue.

AB Fourteen antiallergic title compds. (I, Q = CO or O; R = H, MeO, HOCH2CH2O, or 4-methylpiperazinyl) and II [n = 1 or 0; R1 = H, 6- or 7-Me, 6-O2N, 6-NC, 6-(1H-tetrazol-5-yl), 6-[(1H-tetrazol-5-yl)carbamoyl, 7-HO, or 7-MeO] and optionally their Na or Me2NCH2CH2OH salts were prepared by reaction of the corresponding carboxylic acids or their chlorides with 5-amino-tetrazole (III). Thus, anthraquinonecarboxylic acid reacted with III in CH2Cl2 and aqueous NaHCO3 24 hr at room temperature to give I (Q = CO, R = H).

IT **42073-77-8**
RL: RCT (Reactant); RACT (Reactant or reagent)
(reaction with aminotetrazole)

RN 42073-77-8 CAPLUS

CN 9H-Xanthene-4-carboxylic acid, 9-oxo- (9CI) (CA INDEX NAME)



L7 ANSWER 21 OF 28 CAPLUS COPYRIGHT 2005 ACS on STN (Continued)

L7 ANSWER 22 OF 28 CAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 1972:405281 CAPLUS
DOCUMENT NUMBER: 77:5281
TITLE: Synthesis of a hydroxyxanthone dicarboxylic acid, cassiaxanthone. Reactions of γ-resorcylic acid with phenols
AUTHOR(S): Arunachalam, T.; Anchel, Marjorie; Nair, M. S. R.
CORPORATE SOURCE: New York Bot. Gard., Bronx, NY, USA
SOURCE: Journal of Organic Chemistry (1972), 37(8), 1262-6
CODEN: JOCEAH; ISSN: 0022-3263
DOCUMENT TYPE: Journal
LANGUAGE: English

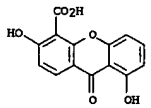
GI For diagram(s), see printed CA Issue.

AB The xanthone dicarboxylic acid, cassiaxanthone (I) was synthesized by condensing γ-resorcylic acid (II) with 3,5-dimethylphenol, methylation of the resulting 1-hydroxy-6,8-dimethylxanthone, and oxidation Side reactions in the condensation of II with several phenols were examined and a number of new products described. Self-condensation of II yielded 1,6-dihydroxyxanthone-5-carboxylic acid (III). In the presence of phenols, the corresponding esters of III were obtained as well. At higher temps., decarboxylation (of either II or III) occurred to yield 1,6-dihydroxyxanthone.

IT **33780-61-9P**
RL: SPN (Synthetic preparation); PREP (Preparation)
(preparation of)

RN 33780-61-9 CAPLUS

CN 9H-Xanthene-4-carboxylic acid, 3,8-dihydroxy-9-oxo- (9CI) (CA INDEX NAME)



L7 ANSWER 23 OF 28 CAPLUS COPYRIGHT 2005 ACS on STN

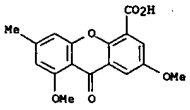
ACCESSION NUMBER: 1970:432292 CAPLUS
DOCUMENT NUMBER: 73:32292
TITLE: Chemical investigations on Cassia occidentalis. I. Isolation and structure of cassiollin, a new xanthone
AUTHOR(S): Ginde, B. S.; Hosangadi, B. D.; Kudav, N. A.; Nayak, K. V.; Kulkarni, A. B.
CORPORATE SOURCE: Dep. Chem., Univ. Bombay, Bombay, India
SOURCE: Journal of the Chemical Society [Section] C: Organic (1970), (9), 1285-9
CODEN: JSOOAX; ISSN: 0022-4952
DOCUMENT TYPE: Journal
LANGUAGE: English

AB Acid-hydrolyzed extractives of C. occidentalis furnished, in addition to emodin and physcion, known to occur in the species, 2 unidentified pigments, m. 214-6° and 243-5°, chrysophanol, α3-sitosterol, and a new xanthone, cassiollin, identified as 1,7-dihydroxy-5-methoxycarbonyl-3-methylxanthone.

IT **27844-62-8P**
RL: SPN (Synthetic preparation); PREP (Preparation)
(preparation of)

RN 27844-62-8 CAPLUS

CN Xanthene-4-carboxylic acid, 2,8-dimethoxy-6-methyl-9-oxo- (8CI) (CA INDEX NAME)



L7 ANSWER 24 OF 28 CAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 1963:27136 CAPLUS
DOCUMENT NUMBER: 58:27136
ORIGINAL REFERENCE NO.: 58:4502c-h,4503a-b
TITLE: Structures of osoic acids and related compounds; metabolites of Oospora sulphurea-ochracea
AUTHOR(S): Natori, Shinsaku; Nishikawa, Hidejiro
CORPORATE SOURCE: Univ. Tokyo
SOURCE: Chemical & Pharmaceutical Bulletin (1962), 10, 117-24
CODEN: CPBTAL; ISSN: 0009-2363
DOCUMENT TYPE: Journal
LANGUAGE: Unavailable
GI For diagram(s), see printed CA Issue.
AB Ultraviolet and infrared absorption spectra of osoic acid and 16 related compds. were measured, and indicated the diphenyl ether structure (I) of the metabolites A, D, and F of O. sulphurea-ochracea, each containing a C-Me, an O-Me, and 2 HO groups, with 2 MeO2C groups in D, 2 HO2C groups in F, and 1 HO2C and 1 MeO2C group in A. The arrangement of the substituents was supported by the xanthone formation (II) on dehydration, methylation of all OH groups in anhydroosoic acid (II, R2 = R3 = R4 = R5 = H) by CH2N2, neg. reaction of osoic acid (I, R1 = R2 = R3 = R4 = R5 = H) with Co(NH3)4Cl3 and (NH4)2MoO4, and the structure of the closely related metabolite B, sulochrin (III), all of which indicated a 2-HO2C group, no substituent at the 6'-position, no 3- or 5'-HO groups, and no o- or p-(HO)2 groups. The close relation between metabolite A and asterric acid (I, R1 = R4 = Me, R2 = R3 = R5 = H) recently isolated (Curtis, et al., CA 55, 8339f) from Aspergillus terreus, was next established by comparison of their chlorination products. Metabolite A treated with Cl in CCl4 3 hrs. at room temperature gave a trichloro derivative (IV), m. 208-9°, whereas metabolite A treated 20 hrs. with SO2Cl2 in CHCl3 gave a dichloro derivative (V), m. 221-3°, further chlorinated to IV. Geodin hydrate (a dichloro derivative of asterric acid), m. 203-6° (depressed on admixt. with V), treated 20 hrs. with SO2Cl2 in CHCl3 containing EtOH gave IV, identical by mixed fusion and infrared absorption with the sample from metabolite A. Thus, metabolite A was established as I (R1 = R4 = Me, R2 = R3 = R5 = H). Metabolite D was, therefore, I (R1 = R2 = R4 = Me, R3 = R5 = H), and metabolite F was I (R4 = Me, R1 = R2 = R3 = R5 = H). Further confirmation came from the similar chlorination of I (R1 = R2 = R3 = R4 = R5 = Me) with SO2Cl2 in CHCl3 to give the dichloro derivative, m. 187-9°, and with SO2Cl2-CHCl3-EtOH to give the trichloro derivative, m. 146-50°/164°, identical with the monochloro derivative of geodin hydrate dimethyl ether Me ester by mixed m.p. and infrared spectra. Further, pure compound A, m. 211-12°, mixed with asterric acid (m. 208-14°), m. 208-14°; pure compound D, m. 188-9°, and pure compound F, m. 237-41° (decomposition), similarly showed no depression of m.p. with Me asterrate, m. 184-6°, and demethylasterric acid, m. 239-42° (decomposition), resp. Confirmation of the xanthone structure of anhydroosoic acid derivs. came by treatment of II (R4 = Me, R2 = R3 = R5 = H) with HI and AcOH to give norgeodin B (Calam, et al., CA 42, 4580a), m. 293-8° (decomposition), 1-methyl-3,5,7-trihydroxyxanthone, converted with Me2SO4 and NaOH in Me2CO into its tri-Me ether, m. 198-200°. The structures of 2 other metabolites of O. sulphurea-ochracea, compds. C and E, were determined by their relations to compds. A, D, and F. Refluxing compound C, m. 198-9°, 2 hrs. with 10% KOH-MeOH gave compound F, whereas acetylation of compound C with Ac2OC5H5N gave compound A diacetate, m. 143-6°. Thus, compound C was established as I (R1 = R4 = Me, R2 = R3 = H, R5 = Ac). The diacetate of compound D, m. 125-6°, was prepared with Ac2OH2SO4 for comparison.

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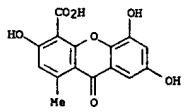
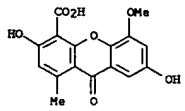
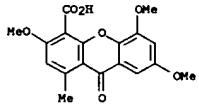
Compd. E [m. 147-8°, [α]15D -66°. (EtOH)] hydrolyzed with H2SO4 gave compd. A, m. 210-12°; treated 10 days at room temp. with MeOH it gave compd. D, and catalytically hydrogenated (Pd-C) in EtOH it gave III, m. 250-4° (decompn.). The ultraviolet and infrared absorption spectra of E were closely similar to those of geodin (Barton and Scott, CA 52, 15497b), which underwent similar methanolysis with MeOH to give a compd., m. 153-4°, formed also by treating geodin hydrate with CH2N2. Compd. E was assigned the structure bisdechlorogeodin (VI). A possible biogenetic sequence of these metabolites was discussed.
IT **3692-41-9**, Xanthene-4-carboxylic acid, 3,5,7-trihydroxy-1-methyl-9-oxo- **92965-51-0**, Xanthene-4-carboxylic acid, 3,7-dihydroxy-5-methoxy-1-methyl-9-oxo- **95020-38-5**, Xanthene-4-carboxylic acid, 3,5,7-trimethoxy-1-methyl-9-oxo- (preparation of)
RN 3692-41-9 CAPLUS
CN Xanthene-4-carboxylic acid, 3,5,7-trihydroxy-1-methyl-9-oxo- (7CI, 8CI) (CA INDEX NAME)



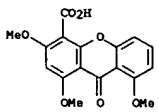
RN 92965-51-0 CAPLUS
CN Xanthene-4-carboxylic acid, 3,7-dihydroxy-5-methoxy-1-methyl-9-oxo- (7CI) (CA INDEX NAME)



RN 95020-38-5 CAPLUS
CN Xanthene-4-carboxylic acid, 3,5,7-trimethoxy-1-methyl-9-oxo- (7CI) (CA INDEX NAME)



L7 ANSWER 25 OF 28 CAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 1962:449194 CAPLUS
DOCUMENT NUMBER: 57:49194
ORIGINAL REFERENCE NO.: 57:9799h-i,9800a-c
TITLE: Mycological chemistry. X. Synthesis of flaviolin (2,5,7-trihydroxy-1,4naphthoquinone)
AUTHOR(S): Bycroft, B. W.; Roberts, John C.
CORPORATE SOURCE: Univ. Nottingham, UK
SOURCE: Journal of the Chemical Society, Abstracts (1962) 2063-4
CODEN: JCSAAZ; ISSN: 0590-9791
DOCUMENT TYPE: Journal
LANGUAGE: Unavailable
OTHER SOURCE(S): CASREACT 57:49194
AB 3,5-(MeO)2C6H3CO2H (18.8 g.) refluxed 1.5 hrs. with 16 g. SOCl2 gave 20 g. 3,5-(MeO)2C6H3COCl (I), b3 118-20°. I (20 g.) in 50 cc. dry Et2O added with stirring to 0.4 mole CH2N2 in Et2O, kept about 3 hrs. at room temperature, and evaporated, the residue dissolved in 400 cc. absolute MeOH, treated with 1.7 g. dry BzOAg in 15 cc. Et3N, followed by an addnl. 1.2 g. BzOAg in Et3N until the evolution of N ceased, refluxed with charcoal, filtered, and evaporated, and the residue dissolved in Et2O, extracted with aqueous NaHCO3, and worked up gave 14 g. pale-yellow, oily 3,5-(MeO)2C6H3CH2CO2Me (II), b15 155-60°. II (4.0 g.), 4.5 g. Ac2O, and 9.0 g. AcOH treated with 5 drops 60% aqueous HClO4, shaken occasionally during 15 min., diluted with H2O, and worked up with Et2O yielded 4.3 g. 2-Ac derivative (III) of II, prisms, m. 64° (petr. ether and sublimed at 55°/0.1 mm.). III(1.5 g.) in 20 cc. EtOH added slowly to NaOEt from 0.24 g. Na in 30 cc. refluxing absolute EtOH, refluxed 20 min., cooled, aerated 4 hrs., and evaporated, and the residue treated with 100 cc. N H2SO4 and filtered off gave about 1.0 g. 2-hydroxy-5,7-dimethoxy-1,4-naphthoquinone (IV), pale-yellow needles, m. 218-19° (decomposition) (C6H6 and sublimed at 150°/0.1 mm.). IV (130 mg.) methylated gave 35 mg. 2,5,7-trimethoxy-1,4-naphthoquinone, golden-yellow prisms. IV (0.5 g.) stirred at 170° into 8 g. AlCl3 and 1.4 g. NaCl, kept 2 min. at 170°, cooled slightly, poured into 100 cc. 5N HCl, and extracted with Et2O-CHCl3, the extract reextd. with aqueous NaHCO3, the aqueous extract acidified and extracted with Et2O, and the residue from the extract chromatographed on powdered cellulose yielded 6 mg. flaviolin, bright red rhombs, m. 250° (decompm.) (dioxane-C6H6).
IT **93322-72-6**, Xanthene-4-carboxylic acid, 1,3,8-trimethoxy-9-oxo- (preparation of)
RN 93322-72-6 CAPLUS
CN Xanthene-4-carboxylic acid, 1,3,8-trimethoxy-9-oxo- (7CI) (CA INDEX NAME)



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L7 ANSWER 26 OF 28 CAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 1962:449193 CAPLUS
DOCUMENT NUMBER: 57:49193
ORIGINAL REFERENCE NO.: 57:9799c-h
TITLE: Mycological chemistry. IX. Synthesis of methyl 1,3,8trimethoxyxanthone-4-carboxylate, a degradation product of sterigmatocystin
AUTHOR(S): Roberts, John C.; Underwood, J. G.
CORPORATE SOURCE: Univ. Nottingham, UK
SOURCE: Journal of the Chemical Society, Abstracts (1962) 2060-3
CODEN: JCSAAZ; ISSN: 0590-9791
DOCUMENT TYPE: Journal
LANGUAGE: Unavailable
OTHER SOURCE(S): CASREACT 57:49193

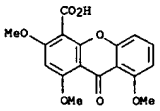
AB cf. CA 56, 11554f. The title compound (I) was synthesized in a 14-stage process from m-C6H4(OH)2 which was first converted by known procedures successively to 2,6-(HO)2C6H3Ac, 2,6-HO(MeO)C6H3Ac, and 2,6-HO(MeO)C6H3CO2H (II), m. 134°. II (5.5 g.), 5.0 g. phloroglucinol, 15 g. ZnCl2, and 40 cc. POCl3 heated 1.5 hrs. at 95-100°, cooled, stirred into 500 g. iced H2O, kept overnight, and filtered, the residue washed, dried, and extracted in a Soxhlet apparatus with Me2CO, and the extract evaporated yielded 1.2 g. 1,3-dihydroxy-8-methoxyxanthone (III), yellow needles, m. 289-90° (EtOH and sublimed at 260°/0.05 mm.); it gave a brown color with aqueous FeCl3. III (4.5 g.) in 25 cc. boiling Ac2O treated with 7 g. boroacetic anhydride in 15 cc. hot Ac2O, refluxed 10 min., cooled, and filtered, and the crystalline residue boiled 15 min. with 150 cc. H2O yielded 4.1 g. 3-acetate (IV) of III, yellow needles, m. 193° (EtOH and sublimed at 175°/0.05 mm.). IV (4.0 g.), 10 cc. MeI, 10 g. dry K2CO3, and 700 cc. dry Me2CO refluxed 48 hrs. with the addition of two 10-cc. portions MeI at suitable intervals, filtered, and evaporated gave 3.6 g. 3-acetoxy-1,8-dimethoxyxanthone (V), m. 195° (EtOH and sublimed at 175°/0.05 mm.). V (3.5 g.), 1.5 g. NaOH, and 250 cc. MeOH kept 3 hrs. at 35-40°, 150 cc. solvent removed, diluted with 500 cc. H2O and 25 cc. AcOH, and centrifuged, and the gelatinous precipitate dried and extracted with Et2O in a Soxhlet gave from the extract 2.2 g. 3-hydroxy-1,8-dimethoxyxanthone (VI), m. 275-7° (sublimed). VI (1.8 g.), 30 cc. 25% aqueous [Et4N]OH, 7 cc. H2O, and 7 cc. CHCl3 refluxed 4 hrs. with stirring, the aqueous layer acidified with 2N HCl, and filtered, and the dried residue extracted with C6H6 gave from the extract 175 mg. 4-CHO derivative (VII) of VI, needles, m. 252-3° (Me2CO and sublimed at 235°/0.05 mm.); it gives a cherryred color with alc. FeCl3. I.H2O sublimed at 180°/0.05 mm. gave I, needles, m. 203°. VII (95 mg.) in 25 cc. dry refluxing Me2CO treated during 2 hrs. with 35 mg. powdered KMnO4 in portions, diluted with 50 cc. H2O, and filtered, the filtrate adjusted to pH 10 with 2N NaOH, concentrated to 50 cc., acidified, and extracted with Et2O, the Et2O extract reextd. with saturated aqueous NaHCO3, and the aqueous extract acidified yielded 67 mg. 4-CO2H derivative (VIII) of VI, m. 240-5° (decomposition). VI treated 12 hrs. at room temperature with 5 mole equivs. CH2N2 yielded 45 mg. I, m. 203° (MeOH and sublimed at 180°/0.05 mm.).

IT **93322-72-6**, Xanthene-4-carboxylic acid, 1,3,8-trimethoxy-9-oxo-

L7 ANSWER 26 OF 28 CAPLUS COPYRIGHT 2005 ACS on STN (Continued)
(prepn. of)

RN 93322-72-6 CAPLUS

CN Xanthene-4-carboxylic acid, 1,3,8-trimethoxy-9-oxo- (7CI) (CA INDEX NAME)



L7 ANSWER 27 OF 28 CAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 1960:110508 CAPLUS
DOCUMENT NUMBER: 54:110508
ORIGINAL REFERENCE NO.: 54:21067g-i,21068a-i,21069a-i,21070a-g
TITLE: Mycological chemistry. VII. Sterigmatocystin, a metabolite of Aspergillus versicolor (Vuillemin) Tiraboschi
AUTHOR(S): Davies, J. E.; Kirkaldy, D.; Roberts, John C.
CORPORATE SOURCE: Univ. Nottingham, UK
SOURCE: Journal of the Chemical Society, Abstracts (1960) 2169-78
CODEN: JCSAAZ; ISSN: 0590-9791
DOCUMENT TYPE: Journal
LANGUAGE: Unavailable
GI For diagram(s), see printed CA Issue.

AB cf. CA 54, 13111f. The isolation of the metabolite sterigmatocystin (I) was described and its structure discussed. (Ultraviolet absorption spectra determined in EtOH). A. versicolor (Vuillemin) Tiraboschi was kept in subculture on Czapek-Dox agar slopes. The mold grown in surface culture on 3% sucrose and inorg. salts (Czapek-Dox formula) in deionized H2O (in flat round culture flasks, each containing 500 ml. medium, sterilized, and then inoculated with a heavy aqueous spore suspension), kept 21 days in the dark at 30° ± 1°, the mycelium collected, washed, dried in vacuo at 45°, the finely powdered mycelium (380 g. from 100 flasks) extracted (Soxhlet) 48 hrs. with Me2CO, the extract (1 l. from 100 g. mycelium) kept overnight at 0°, filtered, the filtrate concentrated to 40 ml., chilled, the precipitate collected, dissolved in CHCl3, the filtered solution poured onto a column (30 + 5 cm.) MgO (previously heated 2 hrs. at 250°), the column developed with CHCl3, eluted with CHCl3 (a yellow band eluted), the eluate evaporated, and the residue crystallized from Me2CO gave 1.3% (calculated on dry mycelium) I, m. 241-2° (decomposition), sublimation at 180°/0.5 mm. giving pure I, m. 246° (decomposition). Sublimed I formed pale yellow needles, m. 246° (decomposition), [α]20.5D -387° (c 0.424, CHCl3), λ 205, 233, 246, 325 mμ (log ε 4.40, 4.49, 4.53, 4.21), ν 3450, 3099, 2995, 2975, 2920, 1650, 1627, 1610, 1590, 1496, 1482, 1447, 1415, 1400, 1362, 1347, 1322, 1300, 1272, 1239, 1197, 1179, 1122, 1098, 1067, 1044, 1019, 993, 978, 952, 932, 904, 895, 846, 823, 774, 756, 735, 722, 702, 668 cm.-1 I was insol. in H2O, aqueous Na2CO3, and aqueous NaOH (deep yellow color with aqueous NaOH), sparingly soluble in most organic solvents, but readily soluble in CHCl3 and C5H5N. I gave a dark green-brown color with concentrated H2SO4, a green color with alc. FeCl3, and a yellow-brown color with aqueous FeCl3. I gave a pos. Gibbs reaction (King, et al., CA 51, 9604i). I (0.1 g.) was recovered unchanged after shaking 7 days with 50 ml. EtOH and 10 ml. concentrated HCl. A similar mixture stirred 3 days at 40-50° gave an unidentified compound, m. 225-7° (decomposition) (EtOH). I (2 mg.) heated 20 min. at 80-90° with 1 ml. 90% H3PO4 in a sealed tube, the tube cooled, crushed under 5 ml. iced H2O, the solution distilled (the 1st 0.6 ml. collected), and 0.3 ml. distillate tested with chromotropic acid gave a neg. test for CH2O (absence of a methylenedioxy group in I). By Michael's method [Am. Chemical J. 5, 81(1883-4)] was prepared 1-hydroxyxanthone, m. 146-7°, ν 1652, 1616, 1580, 1555, 1483, 1468, 1382, 1355, 1337, 1290, 1240, 1221, 1183, 1166, 1121, 1067, 1029, 938, 868, 821, 780, 730,

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677 cm.-1 I (31.1 mg.), 10 ml. AcOH, and 30 mg. 5% Pd-C shaken in H (after 40 min. absorption ceased; 2.08 ml. H absorbed), the mixt. filtered, the filtrate evapd. in vacuo, and the residue (30 mg.) crystd. twice from EtOH gave dihydrosterigmatocystin (II), yellow plates, m. 229-30° (sublimed specimen), λ 208, 232, 247, 325 mμ (log ε 4.31, 4.42, 4.49, 4.21), ν 3450, 2995, 2975, 2920, 1648, 1622, 1582, 1495, 1482, 1450, 1415, 1398, 1346, 1312, 1297, 1275, 1238, 1202, 1181, 1127, 1093, 1054, 1028, 988, 958, 926, 912, 893, 777, 751, 735, 705, 667 cm.-1 II was recovered unchanged after refluxing 24 hrs. with const.-boiling HCl. I (0.3 g.) refluxed 9 hrs. with 100 ml. 15% alc. KOH, the EtOH evapd. in vacuo, the residue mixed with 100 ml. H2O, filtered, the filtrate acidified with concd. HCl, the mixt. warmed (to coagulate the ppt.), the ppt. collected, and crystd. from EtOH gave 0.12 g. isosterigmatocystin, rods, m. 233-4°, λ 252 and 336 mμ (log ε 4.54, 4.15), ν 3484, 3226, 2990, 2922, 2849, 2748, 1652, 1601, 1571, 1514, 1483, 1464, 1446, 1408, 1348, 1325, 1297, 1269, 1228, 1192, 1171, 1161, 1120, 1100, 1065, 1041, 1016, 980, 916, 874, 817, 799, 787, 774, 758, 727, 722, 683, 654 cm.-1, optically inactive, nonreducible under mild conditions, sol. in 2N aq. NaOH and 2N aq. Na2CO3, insol. in aq. NaHCO3, giving a green color with alc. FeCl3 and a purple color with aq. FeCl3. I (0.35 g.), 4 ml. Me2SO4, 4 g. anhyd. K2CO3, and 100 ml. dry Me2CO refluxed 12 hrs., filtered, the filtrate evapd., the residual oil treated with 2 ml. aq. NH3 (d. 0.880) and then with 100 ml. H2O, the ppt. collected, washed, dried, and the product (0.32 g.) crystd. from MeOH gave O-methylsterigmatocystin (III), rods, m. 265-7° (sublimed sample), λ 236 and 309 mμ (log ε 4.61, 4.23), ν (CHBr3) 3124, 1662, 1643, 1603, 1473, 1438, 1418, 1382, 1347, 1267, 1250, 1229, 1204, 1075, 1040, 1016, 970, 890, 840, 811, 770, 752 cm.-1, giving no ferric reaction. III was also obtained by using 3.5 ml. MeI in place of Me2SO4 in the above prepn. II (0.15 g.) with 2 ml. MeI, 1 g. anhyd. K2CO3, and 50 ml. Me2CO gave 0.13 g. dihydro deriv. (IV) of II, rods, m. 282-3°, λ 203, 237, and 311 mμ (log ε 4.42, 4.59, 4.24). III (0.25 g.) hydrogenated in 125 ml. EtOAc over 0.25 g. 5% Pd-C, the product isolated in the usual way, and crystd. from MeOH gave IV, m. 280°. IV (0.1 g.) was recovered unchanged after shaking 3 days with 20 ml. EtOH and 5 ml. concd. HCl. BzCl (3 ml.) added gradually to 0.25 g. I in 6 ml. C5H5N, the soln. allowed to stand overnight at room temp., treated with 1 ml. BzCl, refluxed 15 min., poured into 50 g. ice-H2O, allowed to stand overnight, extd. with 2 50-ml. portions CHCl3, the ext. washed with 2 50-ml. portions 2N HCl and 50 ml. H2O, evapd., the residual oil treated with 5 ml. EtOH, and the product (0.25 g.) recrystd. twice from EtOH gave the O-Bz deriv. (V) of I, needles, m. 258-60°. Similarly was prepd. the O-Bz deriv. (VI) of II, needles, m. 256-8° (EtOH). Hydrogenation of V in AcOH over 5% Pd-C also gave VI. I (0.3 g.), 0.6 g. anhyd. NaOAc, and 3 ml. Ac2O refluxed 6 hrs., the product isolated in the usual way, and crystd. twice from MeOH gave 50 mg. acetoxymono-O-acetylsterigmatocystin, rods, m. 227-8°, ν 1767, 1662, 1641, 1601, 1490, 1470, 1421, 1370, 1350, 1315, 1288, 1239, 1211, 1136, 1108, 1087, 1062, 1013, 973, 926, 900, 816, 791 cm.-1, recovered unchanged after hydrogenation like I. II acetylated as above gave the O-Ac deriv. of II, needles, m. 215-16° (MeOH). LiAlH4 (1.75 g.), 0.325 g. III, and 175 ml. dry Et2O refluxed 18 hrs., the mixt. cooled, the excess LiAlH4 decompd. with 2N aq. H2SO4, the org. layer sepd., washed with H2O, dried, evapd., and the residue (0.3 g.) repeatedly crystd. from MeOH gave the xanthene deriv. (C19H16O5), rods, m. 220-2°, λ 221 and 275 mμ (log ε 4.62, 3.62), hydrogenated in EtOAc over 5% Pd-C to the dihydro deriv., needles, m. 233-6° (EtOH). I (0.5 g.) in 50 ml. PhCl refluxed 3 hrs. with 3 g. powd. AlCl3, the PhCl removed in vacuo at 100°, the residue treated with ice and 2N aq. HCl, kept overnight, extd. exhaustively with Et2O, the combined exts. shaken with

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successive quantities 10% aq. KOH until the aq. layer was no longer colored, the combined aq. exts. acidified with concd. HCl, the mixt. extd. with Et2O, the Et2O exts. washed with H2O, dried, evapd., the residue (0.4 g.) sublimed at 140°/0.1 mm., and the product (0.3 g.) repeatedly crystd. from C6H6 (or C6H6 contg. a trace EtOAc) gave 1,3,8-trihydroxyxanthone (VII), needles, m.p. and mixed m.p. 258-9°, tri-Ac deriv. (VIII), rods, m.p. and mixed m.p. 192-3°. 2,6-(HO)2C6H3CO2H (Cartwright, et al., CA 47, 5382d) (2 g.), 2 g. dry phloroglucinol, 8 g. fused ZnCl2, and 24 ml. POCl3 heated 1.5 hrs. at 80°, the mixt. cooled, stirred into 300 g. iced H2O, neutralized with aq. NaHCO3, the ppt. collected, washed, dried, exhaustively extd. (Soxhlet) with Me2CO, the ext. evapd., the residue sublimed at 140-50°/0.05 mm., and the product (0.5 g.) crystd. from aq. MeOH and sublimed gave VII, m. 259°, λ 208, 228, 247, 329 mμ (log ε 4.31, 4.39, 4.46, 4.28), giving a green-brown color with aq. alc. FeCl3; VIII, m. 193-4° (EtOH); tri-O-Me deriv. of VII, rods, m. 188-90°, λ 204, 242, and 303 mμ (log ε 4.46, 4.56, 4.26). Powd. KMnO4 (0.51 g.) added during 3 hrs. to 67 mg. I in 23 ml. refluxing Me2CO, the mixt. dild. with 75 ml. H2O, warmed (50°), filtered, the filtrate adjusted to pH 10 with aq. NaOH, concd. in vacuo to 30 ml. acidified with 2N aq. HCl, the ppt. filtered off, washed with 20 ml. Et2O, the filtrate extd. with 20 ml. Et2O, the combined Et2SO solns. extd. with 7 ml. satd. aq. NaHCO3, the aq. ext. acidified, and extd. with Et2O gave γ-resorcylic acid, identified by paper chromatography, Rf 0.62, giving a blue color with FeCl3; none of the other compds. present was identifiable. III oxidized with KMnO4 as above gave, among other products, 2,6-HO(MeO)C6H3CO2H, identified by paper chromatography. Powd. KMnO4 (3 g.) added during 2 hrs. to 1 g. I in 250 ml. refluxing Me2CO, the mixt. dild. with 400 ml. H2O, warmed (50°), filtered, the residue washed with 200 ml. warm H2O, the combined filtrate and washings adjusted to pH 10 with N NaOH, concd. in vacuo to 500 ml., acidified with 2N HCl, extd. with 3 500-ml. and 1 200-ml. portions Et2O, the combined Et2O solns. shaken with 2 100-ml. portions satd. aq. NaHCO3, the aq. ext. acidified, the ppt. sepd. by centrifugation, washed, dried, and the product (0.45 g.) crystd. twice from AcOH and then from EtOH with C gave 3,8-dihydroxy-1-methoxyxanthone-4-carboxylic acid (IX), needles, decompg. 190-210°, λ 231, 250 (inflection), 260, 310, 350 (inflection) mμ (log ε 4.44, 4.50, 4.56, 4.01, 3.73). IX pyrolyzed and sublimed at 290°/0.5 mm. gave 3,8-dihydroxy-1-methoxyxanthone (X), needles, m.p. and mixed m.p. 331-2° (decompn.), λ 206, 232, 247, 319 mμ (log ε 4.36, 4.43, 4.50, 4.23). III oxidized by the foregoing method, the resulting acid (0.5 g., noncryst.) treated 12 hrs. with excess CH2N2 in Et2O, and the product crystd. from MeOH gave Me 1,3,8-trimethoxyxanthone-4-carboxylate-0.5 H2O, prisms, m. 201-3°, λ 204, 236, and 306 mμ (log ε 4.28, 4.50, 4.19). γ-Resorcylaldehyde (Shah and Laiwalla, CA 33, 12971) (1 g.) and 1 g. O-methylphloroglucinol [Weidel and Pollak, Monatsh. 21, 15 (1900)] in 3 ml. concd. HCl refluxed 20 min., allowed to stand overnight, the ppt. collected, washed with 2 ml. AcOH, dried, the salt (0.57 g.) suspended in 30 ml. EtOH, hydrogenated over 10 mg. PtO2 at atm. pressure (44 ml. H absorbed in 50 min.), the mixt. filtered, the filtrate evapd. in vacuo, the residue refluxed 0.5 hr. in 25 ml. AcOH, the soln. poured into 100 g. iced H2O, the mixt. extd. with 3 30 ml. portions Et2O, the combined Et2O exts. washed with 2 50 ml. portions aq. NaHCO3, and 50 ml. H2O, dried, evapd., and the residue crystd. from EtOH gave 0.3 g. 3,8-diacetoxy-1-methoxyxanthene (XI), rods, m. 145-6°. To 100 mg. XI in 2 ml. Ac2O and 1 ml. AcOH at 50° was added during 3 hrs. 100 mg. CrO3 in 0.1 ml. H2O and 2 ml. AcOH (Ph2NH used as an external indicator), the soln. mixed with 45 ml. H2O, extd. with 2 100-ml. portions Et2O, the ext. washed with 2 50-ml. portions aq.

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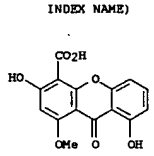
NaHCO3 and 25 ml. H2O, and evapd. to give 60 mg. 3,8-di-Ac deriv. (XII) of X, m. 152°. XII (60 mg.) in 10 ml. EtOH and 1 ml. concd. HCl refluxed 2 hrs., cooled, the ppt. collected, washed, dried, and the product (48 mg.) sublimed at 250-60°/0.05 mm. gave X, m. 331-4° (decompn.), its ultraviolet absorption spectrum identical with X obtained by degradation (above). O3-O bubbled through 0.325 g. III in 120 ml. CHCl3 cooled in Dry Ice-Me2CO, when absorption was complete the soln. allowed to regain room temp., the CHCl3 removed in vacuo, the residue treated with 50 ml. H2O, the mixt. allowed to stand overnight, heated 1 hr. on a steam bath, filtered (0.25 g. insol. residue, which could not be obtained cryst.), the filtrate distd. to min. vol., dild. with 20 ml. H2O, again distd., this operation repeated several times, the combined distillates neutralized with 15.9 ml. 0.5N NaOH (external phenolphthalein indicator), the soln. concd. to 10 ml. shaken with Zeocarb-225, filtered, and the filtrate tested (Tollens reagent, HgCl2 in neutral soln., the chromotropic acid) gave pos. tests for HCO2H; no other acid could be detected in the filtrate by paper chromatography. II (2 g.) shaken 1 hr. with 50 ml. 25% aq. Et4NOH, the soln. treated during 8 hrs. with 1.8 g. K2S2O8 in 50 ml. H2O with continuous shaking, the mixt. shaken a further 12 hrs., acidified with 2N HCl to Congo red, filtered, the filtrate treated with 20 ml. concd. HCl, the mixt. heated 1 hr. on a steam bath, allowed to stand overnight at room temp., the ppt. collected, washed, dried, and the product (0.8 g.) crystd. from EtOH with C and then EtOH-C6H6 gave 0.2 g. 5-OH deriv. (XIII) of II, contg. 0.5 H2O, rods, m. 260-2° (decompn.), λ 248, 280, and 329 mμ (log ε 4.41, 4.03, 4.01). 2 sublimations at 200°/0.02 mm. giving anhyd. XIII, m. 264-5°. To 0.8 g. hydrated XIII in 200 ml. 1% aq. NaOH was added 160 ml. 3% H2O2, the soln. allowed to stand 2.5 days at room temp., filtered, the filtrate acidified with 2N HCl, extd. with 3 150 ml. portions Et2O, the combined exts. washed with satd. aq. NaHCO3 and then with H2O until the pH of the washing did not exceed 7, evapd., the resulting moist oil allowed to stand, the ppt. collected, washed with 3 ml. Et2O, and dried in vacuo at 60° to give 21 mg. phenolic compd. (C11H12O4), rods, m. 152-4° (decompn.), λ 326 mμ (log ε 2.81), ν 3350, 3008, 2983, 2960, 2890, 2855, 1635, 1570, 1518, 1477, 1451, 1380, 1348, 1326, 1300, 1254, 1215, 1200, 1150, 1078, 1062, 1040, 969, 932, 908, 864, 834, 823, 789, 731, 699 cm.-1, almost insol. in H2O, readily sol. in 2N NaOH and 2N Na2CO3, giving a brown color in alc. with alc. FeCl3 but not with aq. FeCl3, and giving a strong pos. Gibbs test. The following structure was suggested for I:

IT **100954-26-5**, Xanthene-4-carboxylic acid, 3,8-dihydroxy-1-methoxy-9-oxo-
(preparation of)

RN 100954-26-5 CAPLUS

CN Xanthene-4-carboxylic acid, 3,8-dihydroxy-1-methoxy-9-oxo- (6CI) (CA INDEX NAME)



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ACCESSION NUMBER: 1959:122089 CAPLUS
DOCUMENT NUMBER: 53:122089
ORIGINAL REFERENCE NO.: 53:21916i,21917a-g
TITLE: Heterocyclic fluorine compounds. III. Monofluoroxanthones
AUTHOR(S): Allen, F. L.; Koch, P.; Suschitzky, H.
CORPORATE SOURCE: West Ham Coll. Technol., London
SOURCE: Tetrahedron (1959), 6, 315-18
CODEN: TETRAB; ISSN: 0040-4020
DOCUMENT TYPE: Journal
LANGUAGE: Unavailable

GI For diagram(s), see printed CA Issue.

AB cf. C.A. 50, 1764h). The 4 monofluoroxanthones (I) (R = H) (II) were prepared by cyclization of the appropriate carboxyfluorodiphenyl ether (III) and by a Balz-Schiemann reaction (C.A. 21, 2668) with the corresponding aminoxanthone. Na (2 moles) in 40 parts by weight MeOH containing a trace of Cu powder treated with 1 mole fluorophenol and 1 mole o-ClC6H4CO2H, the solvent evaporated and the mixture heated 2 hrs. at 150° and 20 min. at 200°, the mixture extracted with boiling H2O and the filtered solution acidified, the product refluxed 8 hrs. with MeOH and H2SO4 and excess MeOH evaporated, the residue poured onto ice and the mixture extracted with Et2O, the extract evaporated and the product fractionally distilled gave III (R = Me, R1 = H, R2 = 2-F), b3 146°, III (R = Me, R1 = H, R2 = 3'-F), b4 145°, and III (R = Me, R1 = H, R2 = 4'-F), b4 154°, in 40, 32.5, and 44% yields, resp. Condensation of 2,4-ClFC2H6CO2H and PhOH with Na gave 30% III (R = Me, R1 = H, R2 = 5'-F) (IV), b6 158°. Concentrated H2SO4 (30.6 g.) and 10 g. 4,2-F(NH2)C6H3Me in 93 ml. H2O diazotized, added portionwise to 150 ml. boiling saturated aqueous CuSO4 and the mixture steam-distilled gave 90% oily 4,2-F(HO)C6H3Me (V), b4 66°, p-nitrobenzyl ester, m. 131°. Condensation of V with o-ClC6H4CO2H yielded 35% III (R = R1 = Me, R2 = 5'-F), b2 128°. III (5 g.) hydrolyzed with 100 ml. N KOH gave the listed 2-carboxydiphenyl ethers, III (R = H) (R1, R2, m.p. of ether, and m.p. of p-nitrobenzyl esters given): H, 2'-F (VI), 140°, 75°; H, 3'-F, 130°, 54°; H, 4'-F, 142°, 76°; H, 5'-F, 122°, 108°; Me, 5'-F (VII), 108°, 87°. III (R =H) heated 30 min. on a steam bath with 15 parts by weight H2SO4 and the mixture poured onto ice, filtered and the washed precipitate recrystd. (alc.) gave I. Appropriate aminoxanthones prepared from 1-, 2-, 3-, and 4-nitroxanthones converted into the corresponding diazonium borofluorides and decomposed according to A. and S. (C.A. 49, 1700h) also gave I. Cyclization of VII gave 66.5% I (R = Me, R' = 1-F), m. 156-7°, taken up (2.4 g.) in 75 ml. 2:1 AcOH-H2SO4 and oxidized by slow addition of 6 g. CrO3 in 30 ml. H2O at 40°, the mixture poured onto ice and filtered to yield 92% I (R = CO2H, R' = 1-F), m. 252° (decomposition); p-O2NC6H4CH2 ester, m. 170-2°. The acid (0.5 g. heated in an ignition tube) and the residue extracted with ligroine (b. 60-80°) yielded 6% II (R' = 1-F) (VIII), m. 147°. Ring closure of III (R = R1 = H, R2 = 3'-F) gave a mixture of II (R' = 3-F) (IX) and VIII, separable by fractional crystallization from alc. in which IX is less soluble VIII and IX were purified by chromatography in ligroine on Al2O3. Decomposition of xanthone-1-diazonium borofluoride, m. 154° (decomposition) yielded 50% VIII. Cyclization of the appropriate ether yielded 83% II (R' = 2-F), m. 156°, also produced in 58% yield by decomposition of

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xanthone-2-diazonium borofluoride. Cyclization of IV yielded 75.5% IX, m. 158°, and pyrolysis of xanthone-3-diazonium borofluoride gave 45.5% product, m. 161° (decompn.). Similarly, ring closure of VI gave 76% II (R' = 4-F), m. 177°, also produced by a Balz-Schiemann reaction as impure material (21%), purified by chromatography in ligroine on Al2O3.

IT **4559-48-2**, Xanthene-4-carboxylic acid, 1-fluoro-9-oxo-
(preparation of)

RN 4559-48-2 CAPLUS

CN Xanthene-4-carboxylic acid, 1-fluoro-9-oxo- (6CI, 8CI) (CA INDEX NAME)